

# **Waterfronts: Spatial composition and cultural use**

**Thesis submitted for the degree of Doctor of Philosophy**

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# Abstract

During the 1950s and 1960s, the change in economic conditions and new transportation technologies resulted in the abandonment of large tracks of urban industrial waterfronts. In the last two decades, these derelict and underutilised urban waterfronts have come to be seen as an important cultural public domain reflecting a 'cultural turn' in post-modern and post-industrial society. There is, however, a lack of research into the spatial and functional composition of these waterfronts for cultural uses and activities. In addition, there is a lack of studies on the design of cultural waterfronts that highlight the different spatiality of these waterfronts compared to inland areas.

This study looks at the various design approaches that generate opportunities for cultural uses and activities at the post-industrial waterfront. A combination of an in-depth literature review on past and present waterfront redevelopments around the world, and an in-depth study of the Baltimore Inner Harbour cultural waterfront were undertaken. The case study applied a multi-dimensional approach consisting of five individual methods - historical, morphological, observation, a questionnaire and an interview analysis. These methods collected different layers of data through which a picture of the use and value of Baltimore Inner Harbour as a cultural space was gradually built up.

The study uncovered seven theoretical themes to be considered in the design of a successful cultural waterfront, each of which is examined through empirical evidence from the research findings: 1) the notion of a cultural waterfront; 2) the image of the cultural waterfront; 3) design process for cultural waterfronts; 4) five realms of waterfronts; 5) designing the 'waterscape environment'; 6) characteristics of the five components that make cultural waterfronts; and 7) the concept of 'waterfront attraction' in designing waterfront space.

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# **Chapter 1:**

## **Introduction**

## 1.1 Research background

The decline of waterfront-related industry, the rapid change of economic conditions and new transportation technologies after World War II caused waterfronts around the world to become derelict and obsolete spaces that could not sustain the previous functions of commerce and transportation. Waterfronts, however, have begun to be revisited by urban researchers, practitioners and developers during the last two decades because they were considered to be valuable urban assets for revitalising urban areas.

Since the early successful waterfront redevelopments of the 1960s, the waterfront redevelopment phenomenon has been observed around the world (Urban Land Institute, 1983; Holye et al; 1988; Bruttomesso, 1993; Falk, 1995; Breen & Rigby, 1996; Meyer, 1999; Krieger, 2001; Marshall, 2001; Yokohama Minato Mirai 21 Corporation, 2002; Gastil, 2002; Monge, 2004). “The waterfront revitalization was the major event in urban planning and development. It symbolized the 1980s in the same way that motorway construction and new town building characterised the 1950s and 1960s” (Hall, 1993: 19). In the course of waterfront redevelopment, waterfronts have been recognised as not only an important public domain because of their wide open natural settings and historic heritage along the water’s edge and their psychological impact on humans, but also as significant cultural places. “They are also unique in their potential to provide diversified opportunities for economic development, public enjoyment, and civic identity.” (Urban Land Institute, 1983: 2)

“Since the late 1980s, public space has been a subject of intense interest. It is the key to urban renewal strategies all over the world” (Hajer & Reijndorp, 2001: 7). In particular, in the post-modern and post-industrial eras, there has been greater attention to the issue of culture – discussed as the ‘cultural turn’ - with many disciplines viewing culture as a tool to understand the urban phenomena (Cook, 2000; Knox & Pinch, 2000; Norton, 2000). Cultural-driven urban developments and the rediscovery of the cultural meaning of urban space have addressed the potential role of waterfronts as both new public domains and as places where cultural uses and activities can take place. Obsolete urban waterfronts had experienced spatial agglomeration of industrial facilities and activities in the past. They are now waiting for new functions to supplant the old and abandoned industrial heritage. “Effective reuse of waterfront sites both for necessary economic development and for recreational and cultural activities has already occurred in several cities, and many other cities are currently exploring similar opportunities. Realising these opportunities, however, was a complex and challenging task” (Urban Land Institute, 1983: 2).



“Much has already been written about port cities in transition, and about particular political or planning problems associated with the waterfront redevelopment movement” (Holye et al, 1988: XVII). Konvitz (1978) explored early modern port planning in Europe in a historical perspective. Successful waterfront redevelopments were found in Boston and Baltimore in North America and in Western Europe, especially in the UK. They provided valuable lessons for other waterfront redevelopments. In particular the ‘Baltimore Syndrome’ has had an effect on many other waterfront redevelopments around the world. The Urban Land Institute’s (1983) ‘Urban Waterfront Development’ attempted to compile a historical perspective of waterfront developments and characteristics of urban waterfronts and the development process showing mainly American waterfront developments. Holye, Pinder and Hussain (1988) argued that the relationship between the port and city interfaces was important, and the implication of this relationship for waterfront redevelopment and city-port economies was crucial. White et al (1993) in their book ‘Urban Waterfront Regeneration: problems and prospects’ examined the physical planning and the design perspective of waterfront redevelopment schemes in terms of planning and architecture, engineering and ecology.

An international conference in Venice organised by Bruttomesso (1993) provided a useful collection of articles about waterfront redevelopment around the world and discussion of world-wide waterfront developments. Recent redevelopment patterns and the new urban success stories of the redevelopments that have taken place during the last thirty years or so are well reviewed by Breen and Rigby in their books ‘Waterfronts; cities reclaim their edge’ (1993) and ‘the New Waterfront’ (1996). Hudson (1996) explored the relationship between the reclamation of urban waterfront areas and urban waterfront developments. Meyer (1999), in his book ‘City and Port’, described the in-depth historical, morphological transformation and development processes for New York, London Docklands, Amsterdam and Barcelona waterfronts. He also mentioned the importance of the waterfront as a place for cultural uses.

Krieger and Cobb (2001) illustrated in great detail the morphological change of the waterfront and included detailed illustrations of the development of the Boston waterfront from the settlement era to the present. Finally, focusing particularly on the second and third generation waterfronts, Marshall (2001) investigated waterfront cities and the new way of approaching them and their use to meet new paradigms in post-industrial society. Gastil (2002) reviewed the historical aspects of New York’s waterfront, and the current projects. In particular, he emphasised the great potential of the relationship between the waterfront and the future of the city as an opportunity for expanding the image of the city through its reconnecting with the water.

Although there is substantial literature on the planning and design of waterfront redevelopments, most of the research has focused on providing: a narrative on the historical transformation between port and city (Konvits, 1978, 1994; Holye et al, 1992; Quartermaine, 1999; Meyer, 1999; Vallega, 2001; Krieger et al, 2001); reviews of waterfront redevelopment cases and analysis (The Urban Land Institute, 1983; Falk, 1986, 1993; Torre, 1989; Bruttomesso, 1993; Breen & Rigby, 1994, 1996; Colquhoun, 1995; Proudfoot, 1996; Meyer, 1999; Marshall, 2001; Gastil, 2002; Graafland, 2002; Millspaugh, 2003); political & economic redevelopment process perspectives, especially private/public partnerships (Proudfoot, 1996; Gordon, 1997; Kilian & Dudson, 1996; Turnbull, 2000; Griffiths et al, 2002; Lawrence & Richards, 2004); and analysis of the physical form of the waterfront from a design perspective (Owen, 1993; Gordon, 1996; Moughtin, 1999). Strategies, redevelopment directions, design schemes and their economic outcomes in different redevelopment approaches were examined. The above literature on the planning and design of waterfronts highlighted common factors: that the waterfront provides an important revitalisation opportunity for cities; that this new public domain reflects the post-modern paradigm; and that the waterfront presented great potential for cultural-led redevelopment opportunities.

First, waterfront space was considered to be a valuable new urban public domain that could meet changing human demands in a post-modern society, characterised by: a shift from the needs/work of industrial society to the pleasures/desires of post-modern urban society (Lefebvre, 1991); a shift from physical needs/protection to creative, pleasing and amenity needs (Maslow quoted in Frey, 1999); a shift from work/local to leisure, global and cultural activities (Gehl, 1999).

In addition, “there is huge interest because of three obvious major factors: the availability of large, underutilised land areas in the heart of cities; the tremendous surge in the service sector of the economy; and the near-magnetic relationship between the waterfront and people, which could at least be re-established” (Samperi quoted in Hall, 1993: 13). In many respects, the leftover and underutilised urban waterfront began to attract attention as an important location for accommodating new human activities. In other words, the waterfront became a great potential cultural public domain to meet the needs of post-modern society. However, compared to the emphasis on historical transformation, planning process and political/economic analysis of urban waterfront redevelopment (Gordon, 1999: 910), there was a lack of research on the spatial and functional relationships between water and land; and on the interface between the built environment, the users and the water; the physical structure of the waterfront’s built environment for specific development patterns. In addition, there is

little research on how waterfronts can be used as a cultural public domain to serve the needs of the times in a post-modern and post-industrial period.

Regarding the cultural use of the waterfront, there is little research regarding the characteristics that define the quality of waterfront space for cultural use; what are the spatial/functional characteristics that exist between the water and the built environment in order to generate cultural uses and activities? How does the physical form of the waterfront support or interfere with human activity patterns and the formation of the built environment? What is the appropriate spatial arrangement of buildings for cultural activities? What specific characteristics of the physical forms of the waterfront create a more culturally adaptable environment? Exploring these questions provides the impetus for this research.

## **1.2 Research aim and objectives**

### **1.2.1 Aim**

The aim of the research is to examine how the spatial and functional composition of the built environment/water interface can generate opportunities for cultural activities and uses.

### **1.2.2 Objectives**

To achieve the above research aim, the objectives of the thesis are divided into four major categories.

#### **1) Investigating the waterfront redevelopment phenomenon around the world**

- To examine the waterfront redevelopment phenomenon past and present
- To investigate the outcomes and processes of successful and unsuccessful waterfront redevelopments

#### **2) Examining the cultural significance of the waterfront in urban design and post-modern society**

- To understand the characteristics of post-modernism and its urban landscape
- To understand the importance of waterfront space as a cultural public domain
- To understand the common cultural significance of waterfront space in post-modern society and urban design

#### **3) Identifying the formation and physical character of the new waterfront spaces**

- To examine the city/waterfront relationship

- To examine the formation of different types of waterfront
- To examine the physical and spatial structure of waterfront space - typology and morphological characteristics

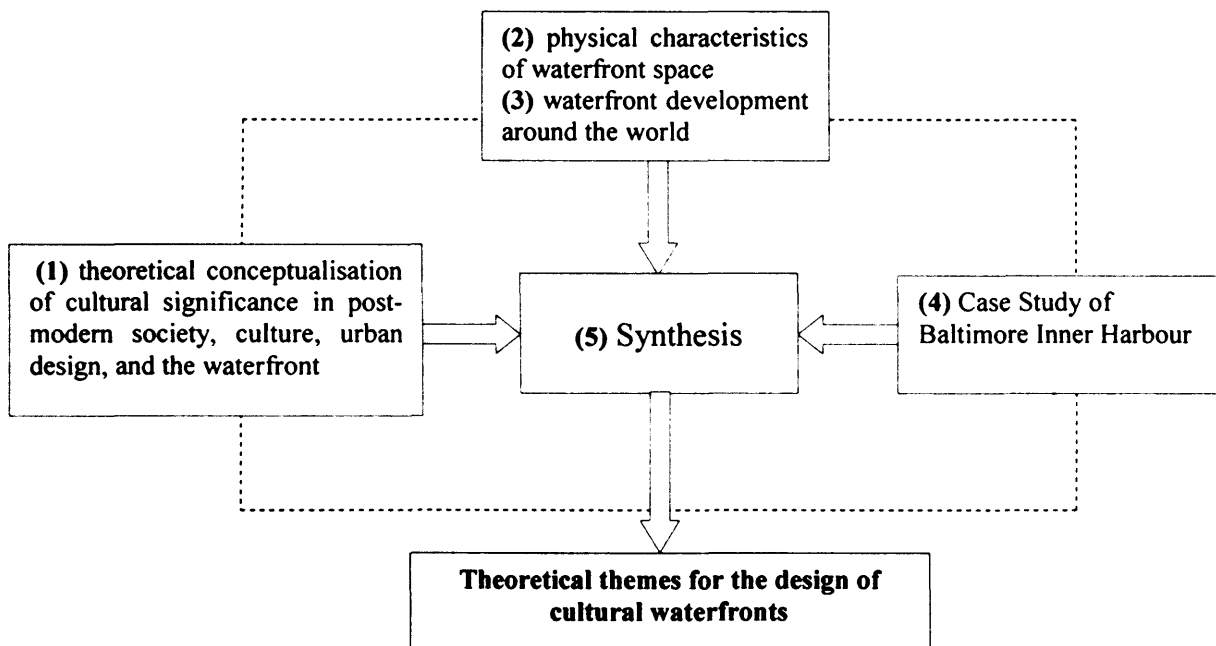
#### 4) Postulating a new theory for the design of cultural waterfronts

- To propose theoretical themes regarding the spatio-functional composition of built environment/water interfaces for generating cultural activities and uses

## 1.3 Research Methodology

The research methodology consists of five main processes to achieve the research aim and objectives (Figure 1.1 and see Chapter 5).

**Figure 1.1** The research methodology



#### (1) Literature review - conceptualization of cultural significance in post-modern society, urban design and the waterfront

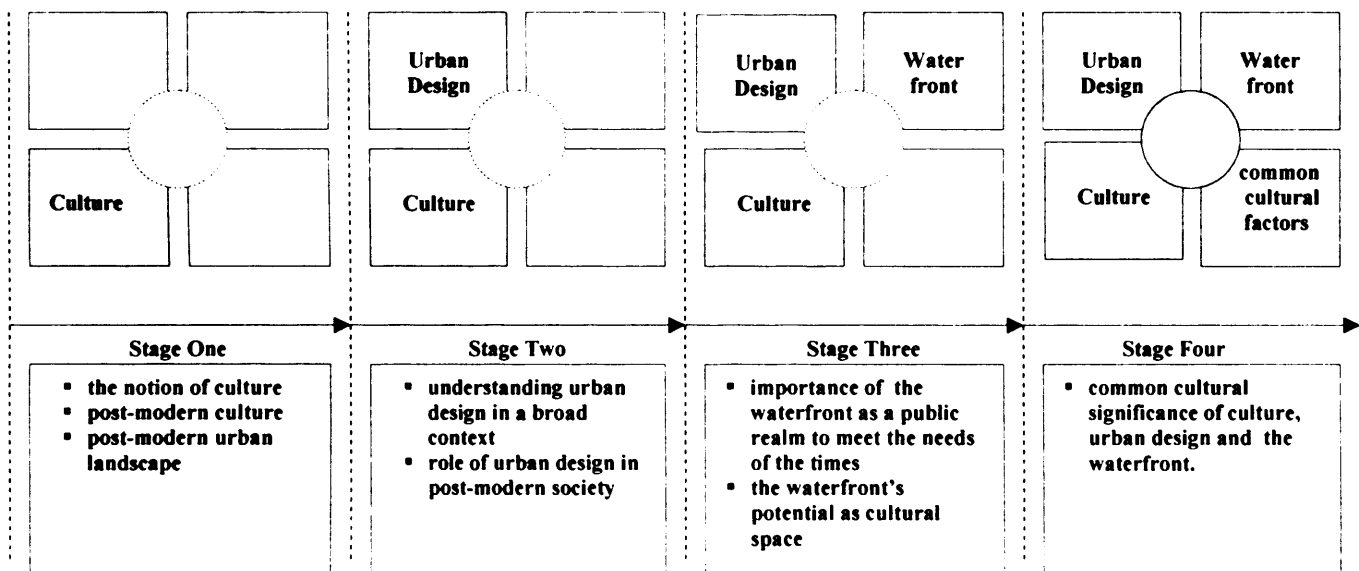
The notions of culture and cultural geography and their implications for post-modern society were examined through the literature review. The role of urban design was also investigated as a tool for designing the cultural public domain. A theoretical conceptualization was made

identifying the common cultural significance of postmodern society, urban design, and waterfronts (Figure 1.2).

## **(2) Literature review – examination of the value, form, typological and morphological characteristics of waterfronts**

The socio-cultural potential of waterfronts as urban spaces were also examined in the literature alongside the physical characteristics of different waterfront forms – harbour, river, canal, lake. The unique spatial structure of waterfront forms was developed into a typology, reflecting the two and three dimensional characteristics of waterfronts.

**Figure 1.2: The four stages of the theoretical conceptualisation process**



## **(3) Literature review - examining waterfront redevelopments around the world both today and historically**

This review of past and present waterfront redevelopments around the world - in particular, in Europe, America and Asia – examined both the successful and unsuccessful elements of developments. Findings from this work provided important clues to develop the analytical framework for the case study. The waterfront examples were analysed in terms of the planning, redevelopment framework, spatial structure of the built environment, and current uses.

## **(4) The case study: investigating a successful cultural waterfront redevelopment - Baltimore Inner Harbour**

Drawing from the international review, the Baltimore Inner Harbour waterfront was selected as a case study in order to illustrate the factors that inform a successful culturally oriented

waterfront environment. The case study adopted a ‘multi-dimensional approach’, consisting of 1)a literature review, 2)a morphological analysis, 3)an observational analysis, 4)a user questionnaire and 5)stakeholder interviews. A multi-dimensional approach (see Figure 5.3 for details) was required because of the complexity of physical and non-physical factors that determine cultural waterfronts. This approach also provided a theoretical foundation to achieve the research aim. The case study was conducted in six stages with each stage focusing on the collection of different types of data (Figure 1.3).

**Figure 1.3 : The framework for the case study**

<b>Approach method</b>		<b>Types of data</b>
1. Brief history of the waterfront	▪ background literature review of the waterfront	▪ to provide a broad context to understand the case study area
2. Morphological analysis of the transition of the waterfront	▪ pictorial and morphological analysis of the built environment/water interface	▪ to examine successful elements between the built environment /water interface
3. User questionnaires	▪ prepared questionnaire in the field (see appendix B)	▪ to collect empirical data regarding the interrelationship between the water, built environment, events and users ▪ quantitative and qualitative data
4. Observation with filming	▪ see section 5.4.2.1 (Figure 5.14 and 5.15)	
5. Stakeholder interviews	▪ see section 5.4.2.2 (Figure 5.16)	
6. The synthesis from 1 to 5	▪ synthesis of the findings from stages 1 to 5	▪ To understand the successful components of the Baltimore Inner Harbour case study

#### **(5) Synthesis of the findings from research methodology stages (1) to (4)**

Based on the synthesis, theoretical themes were proposed for designing the spatio-functional composition of the built environment/water interfaces for cultural uses and activities. They cover:

1. what is meant by the cultural waterfront
2. the image of the cultural waterfront
3. ‘design processes’ for the cultural waterfront
4. characteristics of the ‘five realms of waterfront space’ and cultural uses
5. characteristics of the ‘five components’ that make the cultural waterfront
6. designing the ‘waterscape environment’ of the cultural waterfront
7. the concept of ‘waterfront attraction’ and cultural uses

## **1.4 The structure of the thesis**

The thesis consists of 7 chapters. Chapter 1 explains the research background of this thesis with research aims and objectives. Chapter 2 explores common cultural concerns in cultural geography, the redevelopment of waterfront space, and urban design in post-modern/post-industrial society. The exploration of the above themes provides a theoretical conceptualization to support the potential of waterfronts for cultural uses. It also justifies the importance of 'culture' as a major driving force in shaping the development of post-modern urban space and society. Chapter 3 examines the value of the waterfront for the city, and the physical character of the waterfront space in terms of morphology, formation and typology

In chapter 4, an in-depth literature review of the world-wide waterfront redevelopment phenomena is undertaken in order to look at redevelopment patterns in a broader context – commercial, historical, leisure and entertainment, residential, working and cultural uses. This review provides opportunities to investigate successful redevelopment 'processes' and 'elements' in terms of planning, urban design and architecture.

In chapter 5, on the basis of the empirical findings from chapter 2 to chapter 4, the research methodology, analytical framework and detailed description of the data collection process is reviewed. The selection of the case study is justified with evidence. The scope of the case study area is defined and justified. In particular, a 'multi-dimensional methodology', which consists of five steps to collect data for the case study area, is explained in a detailed manner. Chapter 6 reports the case study findings.

Chapter 7 synthesizes all the findings from chapter 2 to chapter 6 to address the research aim and objectives. The synthesis of the findings leads to a new theory for the design of cultural waterfronts.

# **Chapter 2:**

## **Culture, urban design and the post-modern waterfront**

The aim of this chapter is to explain the common cultural significance of waterfront redevelopments and urban space design, and the characteristics of post-modern society. Above all, this chapter highlights the need for cultural uses of waterfronts in post-modern urban development, and the important role of urban design as a tool in shaping the waterfront's built environment to accommodate cultural uses and activities. Section 2.1 begins by investigating the notion of culture, cultural geography and the character of post-modern culture. Section 2.2, based on the findings of the cultural significance in post-modern era, examines the potential of post-modern urban waterfronts for cultural public domains. Section 2.3 examines the important role of urban design as a tool in the design of the post-modern urban waterfront space to accommodate cultural uses and activities. Finally, section 2.4 emphasises the cultural potential of post-modern waterfront redevelopments.



## **2.1 Culture, cultural geography and postmodern culture**

Without doubt, defining culture might be a painful process because the nature of culture seems very ambiguous and complex. It expresses every aspect of human life and civilisation. Because of this all-inclusive notion of culture, the poet Heinz made the emotive statement, “When I hear the word, [culture], I reach for my gun” (Fontana Dictionary of Modern Thought, 1999: 191). In addition, since the industrial revolution, the rapid industrialisation and deindustrialisation process has produced a more complex and diverse cultural environment. Furthermore, the ‘globalisation’ process, contributed to by Information Communication Technology (ICT) and the mass media, assumes an aspect of standardization of culture. However, at the same time, as a counter-act against globalisation, ‘localisation’ is in progress to protect local identities. In the context of this trend in post-modern society, the notion of culture seems even more complicated to define. In spite of the difficulty, an attempt to define culture might provide a valuable opportunity to understand the reality of the complex nature of culture, if not to get a clear definition of it.

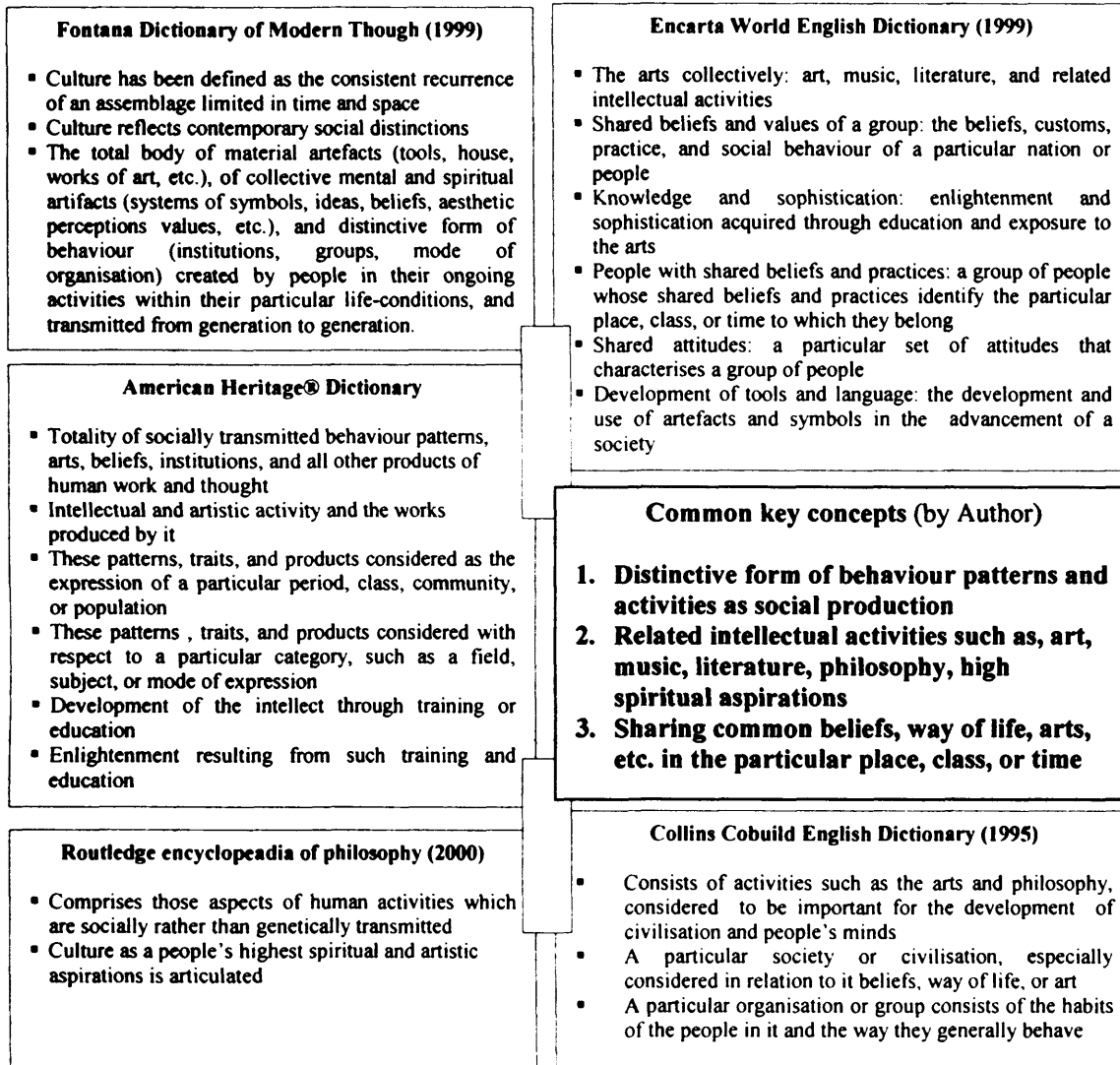
### **2.1.1 The notion of culture**

Cultural studies have recently become a popular subject within anthropology, geography, psychology, linguistics, literary criticism, art theory, philosophy and political science. (Norton, 2000; Knox & Pinch, 2000). This interest reflects the importance of the issue of culture in all subjects in the post-modern period. Great attention is given to the issue of culture, the so-called ‘cultural turn’. In many fields and disciplines, it is the most important driving force shaping current post-modern urban spaces. Cultural studies, among many disciplines, often started with the time-consuming task of defining culture, even though the definition is ambiguous and complex. Because of the difficulty, Williams (1966), one of the exponents of cultural studies, mentions that “culture is the most complicated word in the English language to define because of its intricate historical evolution”.

Figure 2.1 summarises the definition of culture from dictionaries, and demonstrates the common notion of the term ‘culture’. Three common definitions are identified (see highlighted box). The all-inclusive characteristic of the notion of culture is overarching every aspect of human life, society and its production and consumption. In sociology and social anthropology, it is “the belief, behaviour, language, and entire way of life of a particular group of people at a particular time. Culture includes customs, ceremonies, works of art, invention, technology, and traditions” (Encarta Encyclopaedia, 2003). Taylor, a British anthropologist, gave one of the oldest definitions of culture in his book, *Primitive Culture* in 1871. “Culture is that complex whole which includes knowledge, belief, art, morals, law, customs, and other

capabilities and habits acquired by man as a member of society” (quoted in Sadar & Loon, 1998: 4).

**Figure 2.1: The definition of culture (cultural) in dictionaries**



Raymond Williams also defined culture as including the “organisation of production, the structure of the family, the structure of institutions which express or govern social relationships, the characteristic forms through which members of the society communicate” (quoted in Sadar et al, 1998: 5). In addition, Williams defined the notion of culture in his book, ‘Keywords: a vocabulary of culture and society’, in the light of the historical perspective:

Culture in all its early uses was a noun of process: the tending of something, basically crops or animals. From 16<sup>th</sup> century the tending of natural growth was extended to a process of human development, alongside the original meaning of in husbandry, was still the main sense until the late 18<sup>th</sup> and early 19<sup>th</sup> century. [...]. The complexity of the modern development of the world [...] has to categorise three broad active categories of

usage [...]: (i) the independent and abstract noun which describes a general process of intellectual, spiritual and aesthetic development from the 18<sup>th</sup> century; (ii) the independent noun, whether used generally or specifically, which indicates a particular way of life, whether of a people, a period or a group, from Herder in the 19<sup>th</sup> century. But we also have to recognise (iii) the independent and abstract noun which describes the works and practices of intellectual and especially artistic activity. [...] culture is music, literature, painting and sculpture, theatre and film (Williams, 1983: 87-93).

According to Herder “each culture is different and has its own systems of meaning and value, and cannot be ranked on any universal scale” (Routledge Encyclopedia of Philosophy, 2000: 185). Simmel, one of the founders of sociology in Germany and often described as a philosopher of culture, emphasised confrontation and interaction in the process of cultural formation over time and space. In its definition, he saw culture as a two-dimensional process - ‘objective culture’ and ‘subjective culture’<sup>1</sup> – that the cultural forms and artefacts created by human beings also affect human beings’ individual life and their presence at the same time (quoted in Frisby et al, 1997: 5).

In many respects, the notion of culture seems to contain all-inclusive aspects of human development and outcomes of the human development process. Despite the ambiguity, it has two characteristics: 1) an all-inclusive and overarching notion of the everyday aspects of human life and their production; 2) diversity/complexity of its meaning in terms of historical transformation. It seems that the notion of culture contains all forms (built environment, historical artefacts etc.) and contents (the beliefs, languages, traditions etc.) of human civilisation. Because of these characteristics, Sauer mentions that culture is “the most important agent that shaped the physical world” (Rycroft, 2004).

### **2.1.2 Culture and cultural geography**

In terms of cultural geography<sup>2</sup>, Figure 2.2 demonstrates geographic definitions of culture from early studies to the present among different scholars over time. As the Figure shows, definitions of culture shift over time in accordance with social change and conditions. Sauer, Gritzner, Spencer and Thomas, like earlier writers on cultural studies, focused on the relationship of individual life in the community and the form of life in the natural

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<sup>1</sup> Simmel represents culture as a two-dimensional process. On the one hand, the energies and interests of life are defined and moulded by the form of ‘objective culture’, the world of cultural forms and their artefacts that have become independent of individual human existence [...] On the other hand, these cultural forms and their artefacts are incorporated into the ‘subjective culture’ of the individual, the state of the personality which is the ultimate result of the process of cultivation (Frisby et al, 1997: 5).

<sup>2</sup> The branch of geography studying the impact of human culture on the landscape and focusing on the ways in which individual groups create meaning in and thereby shape their environment. As a discipline it has a history that is closely linked with developments in other sub-fields, including regional geography and economic geography (Rycroft, 2004). The systematic field of geography, which treats the spatial expressions of culture and the interactions between human societies and their natural environment (Bullock et al, 1999).

environment defined as the ‘cultural landscape’<sup>3</sup>. In particular, the founder of the Berkeley School of cultural geography, Sauer opposed the prevalence of environmental determinism at the beginning of 21<sup>st</sup> century and insisted on the influence of human impact upon the environment in cultural geography (Rycroft, 2004).

**Figure 2.2:** Some geographic definitions of culture

<b>Figures</b>	<b>Time</b>	<b>Definitions</b>
Sauer	1925	Culture is the impress of the works of man upon the area.
Sauer	1941	Culture is the learned and conventionalised activity of a group that occupies an area.
Gritzner	1966	A culture is a human society bound together by a common complex of culture traits, each trait being anything which to the culturally-bound group has either material form and applicable function, or an expressed value.
Spencer & Thomas	1973	Culture is the sum total of human learned behaviour and ways of doing things. Culture is invented, carried on, and slowly modified by people living and working in groups as each group occupies a particular region of the earth and develops its own special and distinctive system of culture.
Zelinsky	1973	Culture is a code or template for ideas and acts.
Wagner	1974	Learned behaviour is pretty much what we mean by culture.
Wagner	1975	The fact is that culture has to be seen as carried in specific, located, purposeful, rule-following and rule-making groups of people communicating and interacting with one another.
Jackson & Smith	1984	Culture, in the sense of a system of shared meaning, is dynamic and negotiable, not fixed or immutable.
Jackson	1989	Culture is a domain, no less than the political and the economic, in which social relations of dominance and subordination are negotiated and resisted, where meanings are not just imposed, but contested.
Shurmer-Smith Hannam	1994	Culture is that negotiated inter-subjectivity which allows human beings as individuals to reach a tenuous understanding of one another, to experience each other jointly.
McDowell	1994	Culture is a set of ideas, customs and beliefs that shape people's action and their production of material artefacts, including the landscape and the built environment.
Jordan Domosh Rowntree	1997	Culture is learned collective human behaviour, as opposed to instinctive, or inborn, behaviour. These learned traits form a way of life held in common by a group of people.

Source: Norton (2000, p16)

However, in the late 1970s, cultural studies were influenced by the structural approach. The influential 20<sup>th</sup> century thinkers redirected their way of analysis from ideas in human mind to the structure of expression in language – the so-called structural approach (Appignanesi et al, 1995; Sadar et al, 1998; Norton, 2000). This structural approach became the boundary between modernism and post-modernism in all disciplines. Structuralists<sup>4</sup> investigated issues such as where language comes from and if the meaning is expressed by the language. They saw that the meaning of language must be examined not through the origin of the language

<sup>3</sup> Sauer defined his object of study as the “cultural landscape”, the natural landscape as fashioned or modified by human activity. This, he asserted, was the fundamental focus for all geographical enquiry: a “peculiarly geographic association of facts” that helped to delineate a “strictly geographic way of thinking of culture” (Rycroft, 2004).

<sup>4</sup> Saussure(1857-1913) thought that signifier(e.g. the word or acoustic image, e.g. ox) and signified (the concept ox) make up a sign. The signification is the process which binds together signifier and signified to produce the sign (Appignanesi, 1995: 59).

but in its function as a socio-cultural system (Appignanesi, 1995). They concluded that “meaning is therefore the product of a system of a representation which is itself meaningless” (Appignanesi, 1995: 59).

Since the late 1970s, the definition of culture and the investigation of cultural geography have also been influenced by the structuralists’ approach. As Figure 2.2 shows, in the definition of culture, Jackson and Smith emphasise meanings which are dynamic and negotiable, rather than a form of life. In addition, Shummer, Smith and Hannam reject a cultural geography concerned with mappings, of traits on the landscape, emphasising instead ways of being in the environment (Norton, 2000). McDowell, Jordan, Domosh, and Rowntree deal with the most popular definition of cultural interests in current geography. McDowell defines that “culture is socially defined and socially interpreted, and cultural ideas are expressed in the lives of social groups who articulate, express and challenge these sets of ideas and values, which are themselves temporally and spatially specific” (quoted in Norton, 2000: 17). In addition, Jackson and Smith emphasise the spatial projection of culture in their definition:

The emergent qualities of culture often have a spatial character, not merely because proximity can encourage communication and the sharing of the individual life world, but also because, from an interactionist perspective, social groups may actively create a sense of place, investing the material environment with symbolic qualities such that the very fabric of landscape is permeated by, and caught up in, the active social world (Jackson and Smith quoted in Norton, 2000: 17).

Under the influence of post-modernism, cultural geography has been augmented by newly emerging key concerns. Diversity is introduced into the concept due to a continuously changing society and an emerging new paradigm. Generally accepted common themes are introduced by Bullock et al (1999) consisting of six themes:

1. cultural landscape – imprints of human activities successively etched on the natural landscape
2. cultural hearths – source areas from which innovations radiate to the world beyond
3. cultural diffusion – the mechanism and channels by which these innovations spread
4. cultural ecology – the interrelationships between cultures and their habits
5. cultural perception – the ways in which ethnic groups perceive their surroundings and behave towards other cultures
6. cultural region – the delimitation of a world-wide, hierarchical framework to delineate the space occupied by each of the groups that are part of the complex global cultural domain

Norton (2000) also describes how these six themes evolved and were influenced by different paradigms which grouped traditional and recent themes, although each theme overlapped one

another (Figure 2.3). As Figure 2.2 showed, the notion of culture and themes in cultural geography is influenced by the post-modernism period, especially recent cultural geography themes. Thus, it might be useful to look at the characteristics of post-modern culture. An in-depth understanding of post-modernism will facilitate understanding how post-modernism shapes its culture and projects its cultural characteristics into urban space. In addition, the understanding of post-modernism will also facilitate the conceptualisation of common cultural significance amongst the urban design and potentials of the post-modern waterfront, which this chapter focuses on.

**Figure 2.3: Cultural geography and six principal themes**

Theme	Conceptual Inspirations	Principal Figures	Key Concerns	Duration	Current Status	
Traditional themes	Landscape Evolution	Landscape school History Annales school World systems	Sauer Clark Darby Kniffen Meinig Wallerstein Carter J. B. Jackson	Landscape Culture Time	1920s to present	Continuing and changing
	Regions & Landscapes	Landscape school Regional geography New cultural geography Cultural worlds	Sauer Hartshorne Jordan Meinig Zelinsky	Culture Region Landscape Globalisation	1920s to present	Continuing and new concerns emerging
	Ecology & Landscape	Landscape school Anthropology Marxism Political ecology	Sauer Barrows Butzer	Human/nature Culture Ecology Way of life	1920s to present	Continuing and new concerns emerging
Recent themes	Behaviour & Landscape	Psychology Humanism Spatial analysis	Kirk Relph Tuan Wagner Wright	Behaviour Perception Cognition Behaviourism	1940s to present	Continuing and new focus emerging?
	Unequal groups Unequal landscapes	New cultural geography Sociology Marxism Feminism Post-modernism	Blaut Cosgrove P. Jackson Wallerstein	Power Authority Control Patriarchy	1970s to present	Major focus today
	Landscape Identity Symbol	New cultural geography Sociology Humanism Post-modernism	Cosgrove Daniels Duncan P. Jackson Ley Tuan	Place Sense of place Identity Landscape as text	1970s to present	Major focus today

Source: Norton (2000, p23)

## 2.1.3 Characteristics of the post-modern culture

### 2.1.3.1 The theoretical context of post-modernism

“The word post-modernism has shifted from awkward neologism to derelict cliché without ever attaining the dignity of a concept” (Hassan, 1985: 119). “Over the last two decades, post-modernism has become a concept to be wrestled with, and such a battleground of conflicting opinions and political forces that it can no longer be ignored” (Harvey, 1989). Indeed, according to Charles Jencks, “In the last ten years post-modernism has become more than a social and cultural movement, it has become a world view” (The New Fontana Dictionary of Modern Thought, 2000: 673). It seems that philosophy, literature, the arts, psychoanalysis, history, architecture, music, science, and dance have all been influenced by this challenging paradigm (Figure 2.4).

**Figure 2.4:** The post-modernist authors in various disciplines

<b>History</b> Michel Foucault Hayden White	<b>Music</b> John Cage Karlheinz Stockhausen Pierre Boulez	<b>Psychoanalysis</b> Jacques Lacan Gilles Deleuze R.D. Laing Norman O Brown	<b>Philosophy of science</b> Thomas Kuhn Paul Feyerabend
<b>Art</b> Robert Rauschenberg Jean Tinguely	<b>Architecture</b> Robert Venturi Bernard Tshumi Charles Jencks Brent Bolin	<b>Literary theory</b> Roland Barthes Julia Kristeva Wolfgang Iser Yale Critics	<b>Dance</b> Merce Cunningham Alwin Nikolais Meredith Monk
<b>Philosophy</b> Jacques Derrida Jean-Francoise Lyotard			<b>Political Philosophy</b> Herbert Marcuse Jean Baudrillard Jugen Habermans

**Note:** Summarised from Hassan’s ‘The Culture of Post-modernism’ (1985)

Lyotard (1992) sees the post-modernist condition as negative towards all ‘meta-narrative’ characteristic of the enlightenment, sceptical of ‘historical totalisation’ and ‘political dogmatism’, and explores a reevaluation of aesthetics, politics and ethics which result from the meta-narratives of general human development.

Prior to investigating the characteristics of post-modernism and its urban landscape, it might be valuable to examine the theoretical context of post-modernism and its notion. Harvey (1989) used Hassan’s schematic differences between modernism and post-modernism as a starting point to introduce the notion of post-modernism, as there is a widely blurred boundary between the two paradigms. He describes the blurred boundary which contains the paradoxical conflicts and complexities from an historical and theoretical background of post-modernism (Figure 2.5).

**Figure 2.5:** Schematic differences between modernism and postmodernism

Modernism	Post-modernism
Romanticism/Symbolism	Pataphysics/Dadaism
Form (conjunctive, closed)	Antiform(disjunctive, open)
Purpose	Play
Design	Chance
Hierarchy	Anarchy
Mastery/Logos	Exhaustion/Silence
Art Object/Finished work	Process/Performance/Happening
Distance	Participation
Creation/Totalization/Synthesis	Decreation/Deconstruction/Antithesis
Presence	Absence
Centring	Dispersal
Genre/Boundary	Text/Intertext
Semantics	Rhetoric
Paradigm	Syntagm
Hypotaxis	Parataxis
Metaphor	Metonymy
Selection	Combination
Root/Depth	Rhizome/Surface
Interpretation/Reading	Against interpretation/Misreading
Signified	Signifier
Legible (readerly)	Scriptible (writerly)
Narrative/ <i>Grand Histoire</i>	Anti-narrative/ <i>Petite Histoire</i>
Mater Code	Idiolect
Symptom	Desire
Type	Mutant
Genital/Phallic	Polymorphous/Androgynous
Genital/Phallic	Schizophrenic
Organ/Cause	Differecne-Difference/Trace
God the Father	The Holy Ghost
Metaphysics	Irony
Determinacy	Indeterminacy
Transcendence	Immanence

**Note:** Hassan (1985: 123).

In the words of Harvey (1989: 40):

Does post-modernism, for example, represent a radical break with modernism, or is it simply a revolt within modernism against a certain form of 'high modernism' as represented, say, in the architecture of Mies van der Rohe and the blank surfaces of minimalist abstract expressionist painting? Is post-modernism a style [...] or should we view it strictly as a periodizing concept (in which case we debate whether it originated in the 1950s, 1960s or 1970s)? Does it have a revolutionary potential by virtue of its opposition to all forms of meta-narratives (including Marxism, Freudianism, and all forms of Enlightenment reason) and its close attention to 'other worlds' and 'other voices' that have for too long been silenced (woman, gays, blacks, colonised peoples with their own histories)? Or is it simply the commercialisation and domestication of modernism, and a reduction of the latter's already tarnished aspiration to laissez-faire, 'anything goes' market eclecticism? Does it, therefore, undermine or integrate with neo-conservative policies? And do we attach its rise to some radical restructuring of capitalism, the emergence of some 'post-industrial' society, view it, even, as the 'art of an inflationary era' or as the 'cultural logic of late capitalism?'(Harvey, 1989: 40).

Despite the ambiguous boundary between modern and post-modern, it is generally accepted that the genealogy of post-modernism originated from this century's examination of the structure of language and the relationship of each text in the language. The linguistic approach – structuralism - as an analysing tool of the post-modern world opened up new ways of interpreting the modern western world which was legitimated by what Lyotard called 'grand



narratives'. "The key to post-modern scepticism is the problem of language, or rather the illusion of its meaning" (Robinson, 1999: 156). Based on this (Figure 2.6), post-modernism restructured the modernistic understanding of the world and urban spaces, which has been shaped by the rational and scientific way of thinking.

**Figure 2.6:** Four main theoretical backgrounds of post-modernism and its influence on cities and urban space

	1. Structuralism	2. Post-structuralism	3. Deconstructivism	4. Feminism
<b>Key Figures</b>	<ul style="list-style-type: none"> <li>-Ferdinand de Saussure (linguist, 1857-1913)</li> <li>-Roman Jakobson (linguist, 1896-1983)</li> <li>-Claude Levi-Strauss (structural anthropologist, 1908-)</li> </ul>	<ul style="list-style-type: none"> <li>-Roland Barthes (exponent of semiotics, 1915-1980)</li> <li>-Michel Foucault (historian, 1926-1984)</li> <li>-Jean Baudrillard (social and cultural critic, 1929- )</li> <li>-Hal Foster (cultural critic)</li> </ul>	<ul style="list-style-type: none"> <li>-Jacque Derrida (philosopher, 1930- )</li> </ul>	<ul style="list-style-type: none"> <li>-Luce Irigaray (1930 - )</li> <li>-Julia Kristeva (Linguist, psychoanalyst, 1941 -)</li> </ul>
<b>Concepts</b>	<ul style="list-style-type: none"> <li>--Language is the system that permits thinking. Thinking is the system output that occurs in the interaction between human subjects (within culture) and the environment (nature), which is the object of thinking.</li> <li>--Emphasise relationship in the process of constructing meaning (signifier, signified)</li> <li>--Seeking underlying rules and conventions in language operation.</li> <li>--Investigation of the social and collective dimensions of language use.</li> </ul>	<ul style="list-style-type: none"> <li>--Meaning is always indeterminate, elusive and bottomless</li> <li>--Linguistics is not a part of general science. It is semiology that is part of linguistics.</li> <li>--Writing consisted not of signs but of signifiers; writing is thus an indefinite referral of signifier to signified and is thereby infinitely equivocal.</li> <li>--Anything in a culture can be decoded.</li> <li>--'The death of history: historical discontinuity and fragmentation</li> <li>--'The death of the author': readers create their own meanings regardless of the author's intentions.</li> <li>--'Zero degree of writing': suspension of meaning (Barthes, 1967).</li> </ul>	<ul style="list-style-type: none"> <li>--Against the assumption of reason (logocentricism), which is dominated by a metaphysics of presence.</li> <li>--Meaning is not inherent in signs, nor in what they refer to but results purely from the relationship between them.</li> <li>--Any meaning or identity (including our own) is provisional and relative because it is never exhaustive.</li> <li>--Deconstruction-to peel away like an onion the layers of constructed meaning ('Zero Degree of Sense')(Derrida)</li> </ul>	<ul style="list-style-type: none"> <li>--Realisation of woman's position in history- no place in history.</li> <li>--Identity is a constructed and not absolutely fixed reality.</li> <li>--Based on Derrida's attack on logocentric certainty; Foucault's unveiling of 'historical exclusion'; Lacan's own idea of the 'self as fiction'.</li> <li>--Liberal feminism (modernity) to radical feminism (post-modernity)</li> </ul>
<b>Influence on understanding cities and urban spaces</b>	<ul style="list-style-type: none"> <li>- Structuralist idea that the city is legible through the repetition of elements (irreducible, archetypal)</li> <li>- Rossi compares the operation of these permanent urban elements to the function of the fixed linguistic structures of Saussure-Typology.</li> <li>- Fundamental rethinking on the theory of reading and meaning for the city.</li> <li>- <b>Imageability and Legibility</b>-the issue of communicating meaning in a city by Lynch(1960)</li> <li>- The function of type in the European city as a repository of <b>Collective Memory</b> by Rossi (1984)</li> <li>- The city as an artefact, an evolving man-made object, and the <b>representation of cultural values</b> (Rossi).</li> </ul>	<ul style="list-style-type: none"> <li>- Barthes's 'Semiology and Urbanism (1967)'- process of reading the city as a text.</li> <li>- Every city is constructed, made by us, somewhat in the image of the ship Argo, every piece of which was replaced over time but which always remained the Argo, that is a set of quite legible and identifiable meanings (Barthes).</li> <li>- A city is a fabric...of strong elements and neutral elements.</li> <li>- The city will continue to signify(Nesbitt).</li> <li>- <b>Collage City</b>(1975) by Rowe and Koetter-unsystematic tinkering that resists any dangerous totalizing impulse in urban planning.</li> <li>- Rowe and Koetter's <b>collage</b>-in which objects and episodes are obtrusively imported and, while they retain the overtones of their source and origin, they also gain a wholly new impact from their changed context (influenced by <b>Gestalt theory</b>, which permits a multiplicity of meanings)</li> </ul>	<ul style="list-style-type: none"> <li>- Expand deconstruction theory from philosophy and literature to Architecture [urban context] and art.</li> <li>- Attempt to escape from the hegemony of functionality, aesthetic, and dwelling in space.</li> <li>- Reinterpretation towards urban structure-site, plan, landscape, tectonic of space, and social environment.</li> </ul>	<ul style="list-style-type: none"> <li>- Feminist sensibility entered the field of architecture and building in respect of issues of female/male difference, sexuality and spatial divisions.</li> <li>- Increasing concerns of the woman's use of the urban environment and safety.</li> </ul>

**Note:** The description in each column was taken from the author's summaries and from: Post-modernism for beginners (Appignasei, 1995); Introducing Derrida (Collins, 1998); Cultural Studies for beginner (Sadar et al, 1988); Theorizing a new agenda for architecture (Nesbitt,1996); Introducing urban design (Greed, 1998); and The architecture of city (Rossi, 1984).

“It was a scholarly movement based on a loss of faith in the values and ideas that support the modernist project” (Norton, 2000: 242). Haasan (1985) describes the post-modernism as ‘the tendency of indeterminacy’ as the most distinctive characteristics in examining his own schematic differences between modernism and post-modernism. “It, by way of contrast, privileges ‘heterogeneity and difference as liberative forces in the redefinition of cultural discourse’. Fragmentation, indeterminacy, and intense distrust of all universal or ‘totalising’ discourse (to use the favoured phrase) are the hallmark of post-modern thought” (Harvey, 1989: 9).

### **2.1.3.2 Post-modernism: ‘spatial turn’ and ‘cultural turn’**

One of the most important post-modern thoughts might be the rediscovery of the meaning of space, the so-called ‘spatial turn’, which was excluded or ignored by time and history in the modern era (Harvey, 1989a; Soja, 1988; Lefebvre, 1991; Foucault, 1999). An exploration of the role of space in social and urban theory has begun to emerge in the post-modern period in the writing of many authors: Henri Lefebvre’s ‘The Production of Space (1974)’, Fredric Jameson’s ‘Post-modernism, or the cultural logic of late capitalism (1984)’, Michel Foucault’s, ‘Of other space (1986)’ and Soja’s ‘Post-modern Geographies (1988)’. These books have consistently criticised the previous perceptions of space and their obsession with time. In the words of Foucault (1986: 22):

The great obsession of the nineteenth century was, as we know, history: with its themes of development and of suspension, of crisis and cycle, themes of the ever-accumulating past, with its great preponderance of dead men and the menacing glaciations of the world. [...] the present epoch will perhaps be above all the epoch of spaces, we are in the epoch of simultaneity: we are in the epoch of juxtaposition, the epoch of the near and far, of the side-by-side, of the dispersed. We are at the moment, I believe, when our experience of the world is less that of a long life developing through time than that of a network that connects points and intersects with its own skein. One could perhaps say that certain ideological conflicts animating present-day polemics oppose the pious descendants of time and the determined inhabitants of space (Foucault, 1986: 22).

Soja (1998) addressed the reconsideration of the dialectics of space, time and social beings in ‘Post-modern Geographies’ emphasising the social production of space:

In the 1980s, the hoary traditions of a space-blinkered historicism are being challenged with unprecedented explicitness by convergent calls for a far-reaching spatialisation of the critical imagination [...] a more flexible and balanced critical theory that re-entwines the making of history with the social production of space, with the construction and configuration of human geographies. New possibilities are being generated from these creative commingling, possibilities for a simultaneously historical and geographical materialism: a triple dialectic of space, time, and social being; transformative re-theorisation of the relation between history, geography, and modernity (Soja, 1988: 11).

Soja divided space into 'space per se'; 'space as a contextual given'; 'socially-based spatiality'; and 'the created space of social organisation and production' to differentiate between space as a physical context (environmental container of human life) and space as a product of social translation, transformation and experience. In other words, physical (natural) space is disappearing, which is not to say it is diminishing in importance (Lefebvre, 1991: 30); however, physical space is recreated through social interaction (Soja, 1988, 1999).

In his investigation of social space, Dear (2000) like Soja, describes space using Lefebvre's appreciation of city and urbanism as a social production of spatial form. He focuses on the failure of planners' and architects' urban development resulting from their misperception of space, that is their ignorance about the social meaning of space:

Lefebvre uses the city and urbanism as constant use of in his analysis, viewing the built environment as a 'brutal condensation of social relationships'. There is nothing more contradictory than 'urbaneness', especially the role of planners in effective support of capitalism and the capitalist state. Planners, Lefebvre contends, are perfectly at home in dominated space, sorting and classifying space in service to a class. They only deal with 'an empty space, a space that is primordial, a container' [...]. He refers to Haussmann's Paris and Niemeyer's Brasilia as evidence of the consequences of planners' fractured spaces and partial logic (Dear 2000: 54).

Jameson's examination of post-modernism also emphasises the different notion of space under modernism and post-modernism. Dear described Jameson's notion of space:

Categories of space and spatial logic dominated the post-modern in the way time dominated the world of modernism. At the core of Jameson's geography is the assertion that we are experiencing a mutation in built space, i.e. the production of a post-modern 'hyperspace'<sup>5</sup>. We currently lack the perceptual apparatus to assess this hyperspace, experiencing for the moment little more than a 'bewildering immersion' in the new medium (Dear, 2000:55).

Similarly, Foucault describes 'heterogeneous'<sup>6</sup> space, like Jameson's notion of 'hyperspace', in his notion of 'heterotopia', which characterises the central theme of post-modern space. According to Soja:

Foucault focused our attention on another spatiality of social life, an 'external space', the actually lived (and socially produced) space of sites and the relations between them. These heterogeneous spaces of sites and relations - Foucault's heterotopias - are constituted in every society but take quite varied forms and change as 'history unfolds' in its adherent spatiality (Soja, 1996: 17).

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<sup>5</sup> Jameson describes the meaning of post-modern hyperspace: it succeeds in transcending the capacities of the individual human body to locate itself, to organise its surroundings perceptually, and cognitively to map its position in a mappable external world (Jameson, 1995:44).

<sup>6</sup> The space in which we live, which draws us out of ourselves, in which the erosion of our lives, our time and our history occurs, the space that claws and gnaws at us, is also, in itself, a heterogeneous space. In other words, we do not live in a kind of void, inside of which we could place individual and things, we do not live inside a set of relations that delineates sites which are irreducible to one another and absolutely not superimposable on one another (Foucault, 1986: 23).

In short, with the reconsideration of and recognition of the role of space among many disciplines the concepts of 'spatial turn' and 'cultural turn' in section 2.1 have become important foundations to understand post-modern urban space.

### **2.1.3.3 Post-modern urban landscape and its characteristics**

"One of the most innovative aspects of recent debates on the post-modern condition is the notion that there has been a radical break from past trends in political, economic, and socio-cultural life" (Dear, 2000: 140). In particular, "the conjuncture of social, cultural, and spatial changes that has so excited those who write about cities in recent years is loosely gathered in the term post-modern urban landscape" (Zukin, 1994: 221). Thus, the transformation from modern to post-modern urban landscape can be the starting point in examining the post-modern urban landscape.

Understanding the post-modern urban landscape might be a start, with the introduction of several critics, who criticise the problem of modern urban life and problematic urban space through their landmark books, e.g. Jacobs (1961), Calvino (1974) and Raban (1974). In addition, Harvey (1989), Davis (1990), Lefebvre (1991) and the Los Angeles School (Soja, Scott, and Dear) further examined the characteristics of post-modern urbanisation and its problems in the changing world economy and globalisation (Figure 2.7). First, Harvey introduced Raban's Soft City as an important boundary between modern and post-modern. In the words of Harvey (1989: 3):

Raban's Soft City is a historical marker, because it was written at a moment when a certain shifting can be detected [the transition from modern to post-modern] in the way in which the problems of urban life were being talked about in both popular and academic circles (Harvey, 1989: 3)

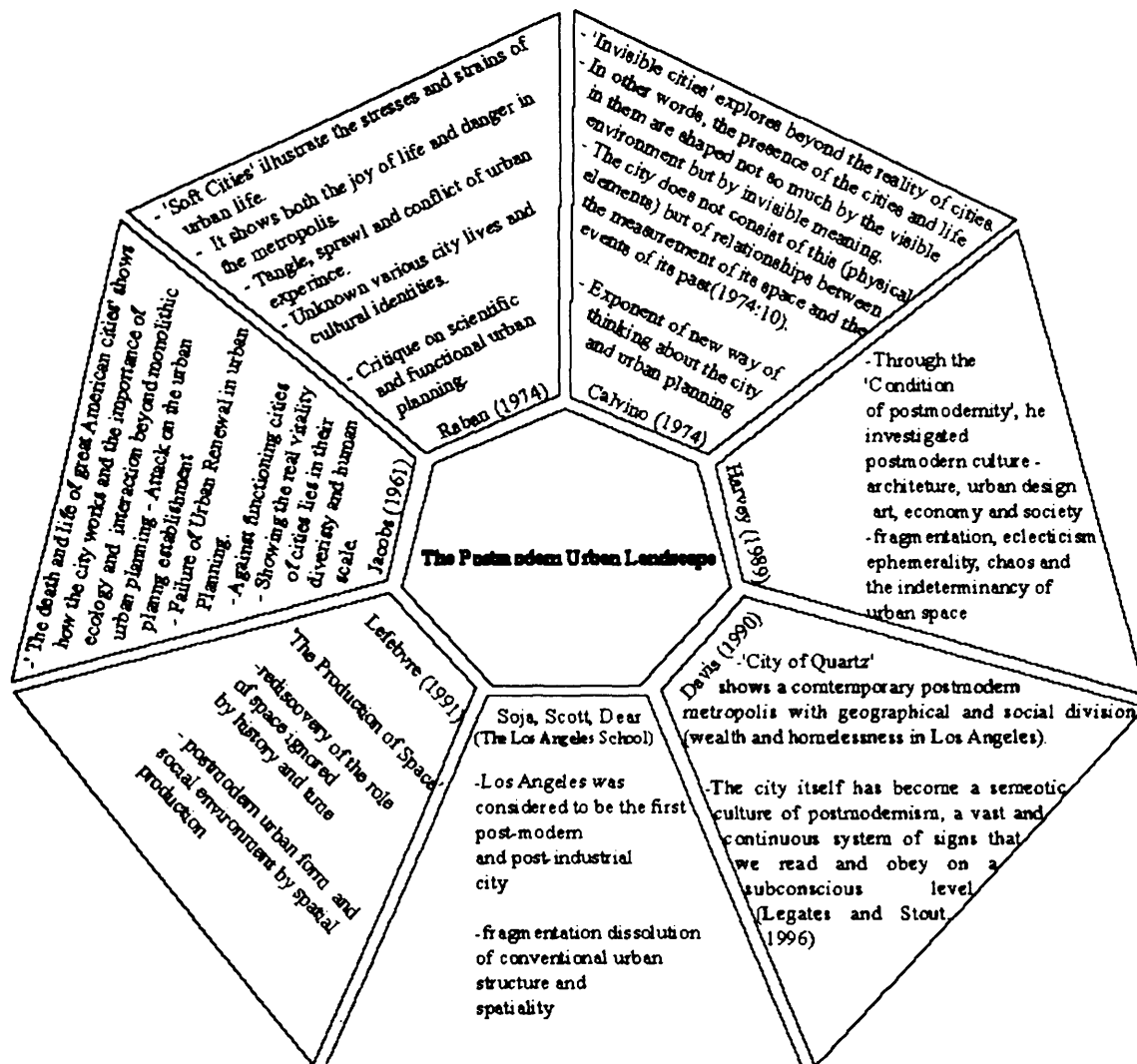
Dear's description of Raban's Soft City in his 'Post-modern Urbanism' introduces the emphasis on the importance of the 'soft' landscape in urban life:

The city goes soft: it awaits the imprint of an identity. For better or worse, it invites you to remake it, to consolidate it into a shape you can live in. You, too. Decide who you are, and the city will again assume a fixed form around you. Decide what it is, and your own identity will be revealed (Raban quoted in Dear, 2000: 141).

In addition, Calvino's 'Invisible Cities' (1974) goes further to describe the same emphasis of the 'soft' landscape – the same metaphorical expression for which Calvino used the term 'invisible' - which was imprinted on the physical urban tectonic:

I could tell you how many steps make up the streets rising like stairways, and the degree of the arcades' curve, and what kind of zinc scales cover the roofs: but I already know this would be the same as telling you nothing. The city does not consist of this, but of relationships between the measurements of its space and the events of its past: the height of a lamppost and the distance from the ground of a hanged usurper's swaying feet [...] As this wave of memories flows in, the city soaks it up like a sponge and expands (Calvino, 1974: 11)

Figure 2.7: The characteristics of the post-modern urban landscape



Source: Author (2002)

Furthermore, Jacobs's 'The Death and Life of Great American Cities' (1961), one of the most influential works in urban planning, severely criticised urban renewal in America which was based on the stereotypical modernistic approach of designing urban space - functional and scientific zoning in New York. Jacobs consistently attacked the modern planning approach - Ebenezer Howard's Garden City, Le Corbusier's Radiant City, Daniel Burnham's City

Beautiful Movement and recent urban renewal programmes. She regarded these ideas which shaped most modern urban landscapes for the first half of the twentieth century as:

From beginning to end, from Howard and Burnham to the latest amendment on urban-renewal law, the entire concoction is irrelevant to the workings of cities. Unstudied, unrespected cities have served as sacrificial victims (Jacobs, 1961: 35).

Throughout the book, Jacobs criticises the deficiency of the modernistic approach to urban planning: what Raban tried to describe as the importance of the 'soft' urban landscape; what Calvino tried to depict as the value of the 'invisible' urban landscape; what Foucault passionately tried to explain as another 'spatiality of social life, an external space' in his history of space; what Simmel's pioneering study of 'social space' as a crucial dimension of social interaction and also of cultural formation (Frisby, 1997); and what Soja (1988, 2003) tried to specify as 'social beings' in urban space.

The importance of these books from Jacobs, Calvino and Raban was that those influential authors provided a benchmark boundary between modernism and post-modernism in urban planning. On the one hand, they tackled the fiasco of post-war mass reconstruction, and the uniformity of the built environment. On the other hand, they suggested a meaningful turning point to rethink the challenge facing the urban planner and designer in the problematic modern urban environment challenged by the post-modernist paradigm.

Harvey (1989) commenced his investigation of the post-modern urban condition by introducing the shift in understanding of the notion of space, focusing particularly on architecture and urban design:

Above all, postmodernists depart radically from modernist conceptions of how to regard [urban] space. Whereas the modernists see space as something to be shaped for social purposes and therefore always subservient to the construction of a social project, the postmodernists see space as something independent and autonomous, to be shaped according to aesthetic aims and principles, which have nothing necessarily to do with any overarching social objective [...] (Harvey, 1989: 66).

In terms of architecture and urban design, post-modernism is characterised by the way of perceiving and interpreting the meaning of the city and its architecture in urban space influenced by the structural approach (Figure 2.6) The meaning, identity, eclecticism and modern buildings as replicas of historical buildings became an important agenda in designing architecture and urban space (Lynch, 1960; Rossi, 1966; Rowe & Koetter, 1975; Venturi et al, 1977). Jencks (1990), the post-modern architecture critic, described the characteristics of post-modern architecture showing the differences in ideology, style, and main design ideas in modern, late-modern and post-modern works (Figure 2.8). A great variety of styles, eclectic

characteristics of architectural design, dispersed urban centres, and decentralised urban form were mainly found in post-modern architecture and urban space.

**Figure 2.8:** The differences of modern and post-modern architecture

<b>Modern(1920 - 60)</b>	<b>Late-Modern(1960- )</b>	<b>Post-Modern(1960 - )</b>
<b>Ideological</b>		
1. one international style, or 'no style'	Unconscious style	Double-coding of style
2. utopian and idealist	Pragmatic	'Popular' and pluralist
3. deterministic form, functional	loose fit	Semiotic form
4. zeitgeist	late-capitalist	Traditions and choice
5. artist as prophet/healer	suppressed artist	Artist/client
6. elitist/for 'everyman'	Elitist professional	Elitist and participative
7. holistic, comprehensive redevelopment	Holistic	Piecemeal
8. architect as saviour/doctor	Architect provides service	Architect as representative and activist
<b>Stylistic</b>		
9. 'straightforwardness'	Supersensualism/Slick-tech/High-tech	Hybrid expression
10. simplicity	Complex simplicity-oxymoron, ambiguous reference	Complexity
11. isotropic space (Chicago frame, Domino)	Extreme isotropic space (open office planning, 'shed space') redundancy and flatness	Variable space with surprise
12. abstract form	Sculptural form, hyperbole, enigmatic form	Conventional and abstract form
13. purist	Extreme repetition and purist	Eclectic
14. inarticulate 'dumb box'	Extreme articulation	Semiotic articulation
15. Machine Aesthetic, straight forward logic, circulation, mechanical, technology and structure	2 <sup>nd</sup> Machine aesthetic, extreme logic, circulation, mechanical, technology and structure	Variable mixed aesthetic depending on context; expression of content and semantic appropriateness towards function
16. anti-ornament	Structure and construction as ornament	Pro-organic and applied ornament
17. anti-representational	Represent logic, circulation, mechanical technology and structure, frozen movement	Pre-representation
18. anti-metaphor	Anti-metaphor	Pre-metaphor
19. anti-historical memory	Anti-historical	Pro-historical reference
20. anti-humour	Unintended humour, malapropism	Pro-humour
21. anti-symbolic	Unintended symbolic	Pro-symbolic
<b>Design ideas</b>		
22. city in park	'monuments' in park	Contextual urbanism and rehabilitation
23. functional separation	Function with a 'shed'	Functional mixing
24. 'skin and bones'	Slick skin with Op effects, wet look distortion, sfumato	'Mannerist and Baroque'
25. Gesamtkunstwerk	Reductive, elliptical gridism, 'irrational grid'	All rhetorical means
26. 'Volume not mass'	Enclosed skin volumes, mass denied; 'all-over form' - synecdoche	Skew space and extensions
27. slab, point block	Extruded building, linearity	Street building
28. transparency	Literal transparency	Ambiguity
29. asymmetry and 'regularity'	Tends to symmetry and formal rotation, mirroring and series	Tends to asymmetrical symmetry(Queen Anne Revival)
30. harmonious integration	Packaged harmony, forced harmonisation	Collage/collision

Source: Jencks (1990, p67)

In particular, giving as an example the works of post-modern architect Philip Johnson, he explains the characteristics of post-modern architecture in a detailed manner. In the words of Jencks (1990) (Figure 2.9):

One of Johnson's post-modern towers which transforms, in glass, the Victorian Tower at the House of Parliament. The essentialisation of one idea in a different material – wooden construction in stone – was a hallmark of Classicists, so it is ironic that here Johnson should invent the process – caricaturing Gothic in glass. The absolute attitude towards transformation and the tough, sheer façade punctuated by triangular indents, give the product a certain stature. The 231 spires, with fluorescent lamps, give it a certain awesome kitsch. (Jencks, 1990: 158).

**Figure 2.9:** Post-modern Architecture: Pittsburgh Plate Glass Headquarters by Philip Johnson



Source: Jencks (1990, p156)

With respect to the characteristics of post-modern urban space, “In the mid-1980s various social scientists announced Los Angeles’s arrival upon the scene as the world’s first certified post-modern and post-industrial city” (Curry & Kenney, 1999: 1). The authors explored Los Angeles to identify the characteristics of the prototypical post-modern city (Soja & Scott 1996; Davis, 1990; Garreau, 1991; Sorkin, 1992; Jencks, 1993; Relph, 1987; Ellin, 1996; Dear, 2000). These groups of scholars were named The Los Angeles School because of their dedication to research on the city. Dear (2000), in his book ‘The Post-modern Urban Condition’, summarised the characteristics of the post-modern urban landscape, referring to the wide range of research by these scholars, and using their terms to describe the post-modern urban landscape of Southern California (Figure 2.10).



**Figure 2.10: A Taxonomy of Southern California urbanism and key issues in post-modern urban space**

Type	Description
Edge cities	Garreau(1991) noted the concept to explain contemporary metropolitan growth in the US. Automobile and communication technology break down traditional meanings of community.
Privatopia	The Quintessential Edge City residential form. Balkanise nation of defended neighbourhood with one another.
Cultures of heteropolis	The rise of minority populations leads to high identity and multienclaves with mixed identity. Los Angeles is the most heterogeneous city in the world(Jencks, 1994: 12).
City as theme park	Sorkin (1992: xi) describes theme parks as places of simulation without end, characterised by aspatiality plus technological and physical surveillance and control. Los Angeles is the place the American Dream comes true - hope, risk-taking and a spirit of experimentation.
Fortified city	Davis (1990) depicts how the Southern California obsession with security transformed the region into a fortress. As a result, the physical form of the city fortified the cells of affluence and places of terror. High-rent security of gated residential developments, Panopticon malls and space policing result in sequestering and excluding the poor and destitute through security by design.
Interdictory space	Flusty(1994) observed how various types of fortification have extended across the entire city and identifies how spaces are designed to exclude by a combination of their function and cognitive sensibilities. It is an acute fragmentation of the urban landscape.
Historical geographies of restructuring	Soja (1996: 426-62) saw peripheralisation, post-fordism and globalisation restructuring in Los Angeles. Then, he defined 'six geographies of urban restructuring': <ul style="list-style-type: none"> <li>▪ Exopolis – simulacrum, exact copy of an original that never existed, image and reality are spectacularly confused.</li> <li>▪ Flexcities – Associated with the transition to post-Fordism, deindustrialisation and the information economy.</li> <li>▪ Cosmopolis – referring to the globalisation of Los Angeles both in terms of World City status and its internal multicultural diversification.</li> <li>▪ Splinter Labyrinth – extreme forms of social, economic, political polarisation. Characteristic of the postmodern city.</li> <li>▪ Caceral city – referring to the new incendiary urban geography brought about by the amalgam of violence and police surveillance.</li> <li>▪ Simcities – new way of seeing the city: a kind of epistemological restructuring that foregrounds a postmodern perspective.</li> </ul>
Fordist / Postfordist Regimes of accumulation / regulation	Mass production changed into 'flexible production'. In particular, small-size and small-batch units of production integrated into clusters of economic activity. It led to labour intensive craft forms and high technology, the so-called, Technopoles in Southern California.
Globalisation	The Goba / Local dialectic has become an important leitmotif of contemporary urban theory.
Politics of nature	The force of nature in Southern California has spawned a literature that attempts to incorporate environmental issues into the urban problematic.

**Note:** The author summarises and adopts Dear's description of all terminology in his book, 'The Post-modern Urban Condition'. There are some simplifications of the description by author.

Dear (2000: 25) argues that "post-modern conceits are the notions of fragmentation of traditions, fashions and trends. And transition is another common element in the postmodern repertoire". Then, he goes further, "each of the themes – globalisation, polarisation, fragmentation and cultural hybrid and cybercities – holds a place in our post-modern urbanism" (Dear, 2000: 160). Soja (1994), one of the pioneers of socio-spatial dialectic, emphasises the 'heterogeneous' space of sites and relations like Foucault's 'heterotopia' in post-modern society and the urban environment.

To sum up, whether post-modern urbanisation is more or less different depends on the socio-cultural context. The overall characteristics of post-modern urban landscape can be summarised by: 1) rapid urbanisation and decentralisation with globalisation; 2) fragmentation of the social and built environment by people from different ethnic and cultural backgrounds; 3) heterogeneous urban landscapes and cultural diversity; and 4) polarised urban society. Based on this, we examine how the post-modern urban landscape arrived at

waterfronts, where a rapid industrialisation and deindustrialisation process had taken place. The next part will investigate the landscape of post-modern waterfronts.

## **2.2 Waterfronts as a unique post-modern cultural public domain**

### **2.2.1 The post-modern waterfront landscape**

#### **The evolution and decline of post-modern waterfront space**

Post-modernism also arrived at waterfronts around the world in the 1950s and 1960s. Unlike the urban landscape already described in the previous section, their large-scale and sudden abandonment left economic and socio-cultural problems near to the urban core. Because of this, the post-modern waterfront landscape was characterised by under-utilisation, isolation and problematisation. However, at the same time, the abandonment left great opportunities for redevelopment, often on the edge of or in the heart of the urban core.





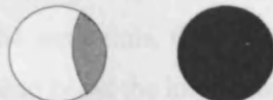
There is no doubt that human settlements and civilisation flourished along the waterfront where water resources were available. In ancient times, the waterfront and its resources were the main place to obtain drinking water and to locate agriculture to sustain human life. Waterways were also important transportation corridors connecting different societies through commercial and trading activities. During the industrial revolution, waterfronts in both Europe and North America were major industrial areas because of their geographical advantage, allowing the easy exchange of goods, the import and export of industrial material, and easily available water for industry. The expansion of port cities around the world increased with the growth of the global capitalist economy up to World War II with rapid industrialisation.

However, new transportation technologies, such as large cargo ships and air transportation (Hall, 1993), the economic restructuring of society from manufacturing to service industries (Harvey, 1989), and the emergence of information communication technology (Castells, 2000) under late-capitalism resulted in the decline of the existing function of the ports. As a result, dramatic spatio-functional decay took place along the industrial waterfronts in advanced countries. Monge (2004: 229) argued that :

The great majority of industries once related to the functions of ports are gone. The large infrastructures that sprang up alongside the ports in the cities and which made them autonomous realities surrounded by the working-class neighbourhoods – populated by labourers, petty criminals, unemployed, pimps and prostitutes, political and trade union activities, and transient populations connected with maritime ways of life – are rapidly disappearing or becoming obsolete (Monge, 2004: 229).

Hoyle et al (1998) also give a useful description about the change of functions between ports (waterfronts) and the city (Figure 2.11), from ancient to current waterfront redevelopments. They describe a radical functional and morphological transition from city to port, which created large amounts of left-over urban waterfront space between the 1960s and 1980s for the above reasons.

**Figure 2.11:** Stages in the evolution of the port-city interfaces

Stages	Symbol		Period	Characteristics
	○ city	● port		
I. Primitive City port			Ancient-medieval to 19 <sup>th</sup> Century	<ul style="list-style-type: none"> <li>▪ Cross spatial and functional association between city and port</li> </ul>
II. Expanding City port			19 <sup>th</sup> to early 20 <sup>th</sup> century	<ul style="list-style-type: none"> <li>▪ Rapid commercial and industrial growth forces port to develop beyond city confines, with linear quays and break-bulk industries</li> </ul>
III. Modern industrial city port			Mid to 20 <sup>th</sup> century	<ul style="list-style-type: none"> <li>▪ Industrial growth (especially oil refining) and introduction of containers and ro-ro facilities require separation and increased space</li> </ul>
IV. Retreat from the waterfront			1960s – 1980s	<ul style="list-style-type: none"> <li>▪ Changes in maritime technology induce growth of separate maritime industrial development areas</li> </ul>
V. Redevelopment of the waterfront			1970s – 1990s	<ul style="list-style-type: none"> <li>▪ Large-scale modern ports consumer large areas of land and water-space: urban renewal of original core</li> </ul>

Source: Hoyle et al (1988, p7)

Meyer (1999) also categorised the transformation of the port and city relationship to explain the spatial transformation of the waterfront space in London, Barcelona, New York and Amsterdam. He divided this into four stages, as follows (1999: 62):

1. Premodern times, or the period immediately preceding the large-scale construction in nineteenth-century ports.
2. Early modern times, or the period in which the construction of the harbour areas now considered obsolete took place.
3. Modernism in the port city, or the period of twentieth-century urban planning interventions in the developments of port and city
4. Post-modernism, or the current period, with its plans and strategies for nineteenth-century harbour areas.

Norcliff, Basset, and Hoare (1996; 124) also successfully demonstrated the key transformation factors of the port-city relationship over time. In particular, they introduced the post-modern

characteristics of the urban waterfront in terms of the geographical perspectives of the changing relationship between port and city (Figure 2.12). In other words, while the industrial waterfronts (ports) made a great impact on cities in the modern era in terms of production, in the era of post-modernism, waterfronts are considered an important public space where cultural consumption can take place.

**Figure 2.12:** The changing relationship of the post-modern and post-industrial waterfront

Time	Geographical association	The direction of the influence	Characteristics of urban waterfronts
↓	Port = City ↓	Port to City ↓	Production-based ↓
	Port ≠ City	City to waterfront	Consumption-based

**Source:** Norcliff et al (1996, p124)

In short, the evolution of waterfront spaces from ancient times to before the industrial revolution was steady and gradual, but they found a clear functional and spatial disruption in the port and city relationship between the modern and post-modern period. As a result, the landscape of post-modern urban waterfronts is characterised as derelict spatio-functional disintegration. At the same time, they provide important potential areas, where large amounts of land are available to boost the local economic and socio-cultural domain.

### Postmodern waterfronts

With the advent of post-modernism in the 1960s and 1970s, these derelict waterfronts located at the city centre or in the edge along harbour, river or lake, have received great attention from urban planners and developers as opportunities for not only revitalising cities from an economic, social and cultural perspective, but also for accommodating new needs from a changing society. In addition, they have become a focus for the restructuring of cities (Monge, 2004).

Two waterfront redevelopment phenomena, both on the Atlantic coast of the United States, were undertaken during the 1970s and the 1980s: Baltimore Inner Harbour and Boston. The success of these sparked the era of waterfront redevelopment (Hall, 1993; Burtomnesso, 1993; Breen & Rigby, 1994; Meyer, 1999). However, the redevelopment patterns and approaches of waterfronts have been often dominated by the urban traffic corridors, commercial and large-scale development in North America, Europe and Japan, e.g. Chicago, Docklands in London, the Waterfront Sub-centre in Tokyo (Figure 2.13).

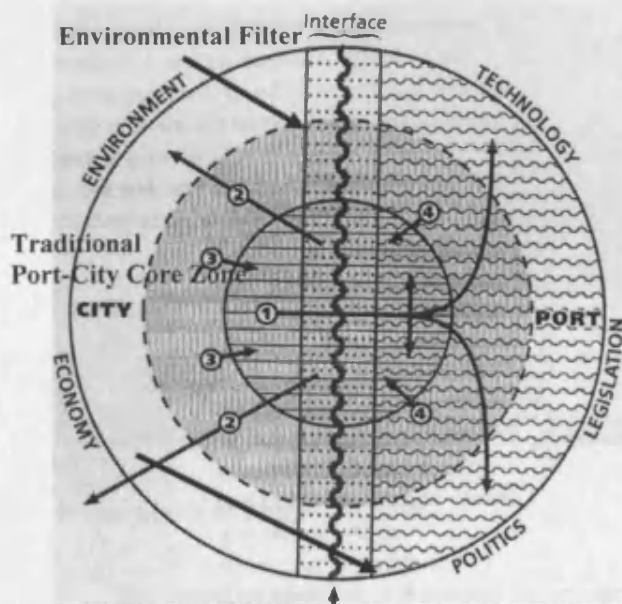
**Figure 2.13:** Chicago riverfront and the failure of the modern waterfront



Source: Zukowsky (1993, front cover)

In addition, the redevelopment of post-modern waterfronts needs to negotiate various issues related to the environment, the economy, politics and technological aspects in the course of redevelopments (Figure 2.14) (Vellega, 1993). Compared to the monolithic industrial usage of the waterfront in the past, the reuse of waterfronts in post-modern society required diverse spatio-functional variations.

**Figure 2.14:** Zone of conflict/co-operation, factors involved in port-city development



Source: Vellega (1993, p24) Note: ① Port migration, ② Industrial migration, ③ Land-use competition, ④ Water-use competition

The landscape of the post-modern waterfront might be explained from three paradoxical perspectives. First, there are the negative images of left-over, abandoned, isolated and underutilised land (State of Wisconsin, 1966; The Urban Land Institute, 1983; Helye et al, 1988; Torre, 1989; Breen & Rigby, 1994; White et al, 1993; Bruttomesso, 1993; Quartermaine, 1999; Meyer, 1999, Marshall, 2001; and Castil, 2002). This was the image of physically abandoned and socially problematic areas, including unemployment, crime and social segregation due to the closure of port-related industries. Second, there is the image of opportunities for the redevelopment of large areas of urban land. Finally, the waterfront was a key part of collective memory and urban history, which consisted of historic built environment and industrial heritage, to be taken into account when redeveloped.

### Reuse of postmodern waterfronts

The reuse of obsolete waterfront spaces as an opportunity to eliminate physical and social problems, such as physical decay and unemployment, and regenerate the abandoned waterfront have been widely attempted in Europe and North America. For instance, the exemplary model of Baltimore Inner Harbour waterfront's transformation, rescued from abandoned urban squalor and transformation into a local gathering place, and national attraction of a world cultural quarter, provides important lessons. In particular, great attention has been paid to the reuse of the waterfronts as public cultural domains becoming popular in many world cities (Figure 2.15).

**Figure 2.15:** The transformation of the former industrial waterfront into the central cultural public domain in Yokohama Minato Mirai 21 (Future Port 21)



In the words of Shaw:

The character of the post-industrial waterfronts in the information age is not yet clear. As we enter the twenty-first century there is a sense of celebration. What we expect is that the balance between cultural opportunity and quality of life will play a dominant part in shaping the successful city (Shaw, 2001: 171).

In the introduction to his book, *Port and City*, Meyer (1999) also emphasises the reuse of waterfronts as a new public domain which represents cultural values and identity in terms of creating a new relationship between underutilised waterfront and the new socio-cultural environment. In addition, Monge (2004: 230) considers derelict urban waterfront space as a challenge and an opportunity for cities around the world “by focusing on this new urban space, new theoretical and planning opportunities arise” Furthermore, the illustration of a series of waterfront redevelopment cases around the world in Breen & Rigby’s book, ‘*The New Waterfront*’, shows that the image of new urban public domains - waterfronts - have been shaped in different continents and periods. At the heart of the various illustrations of the waterfront redevelopment cases, the reuse of waterfronts as public domains becomes central. Above all, the cultural use of the public domain on the waterfronts are identified as a key to success.

Two important common factors can be found in post-modern waterfront redevelopments and their potentials: An important ‘opportunity for cultural uses’ and ‘a unique public domain for high quality urban life’ (Shaw, 2001). “Waterfronts have become a cultural space, a city edge – though located in central spaces – where the post-industrial city acquires a new image, expresses a new nature and exudes vitality” (Monge, 2004: 230). In other words, post-modern waterfronts provide an opportunity to “explore the symbolic role of water infrastructure in the modern city and the emergence of new forms of social and cultural hybridity” (Gandy, 2004: 364). Thus, one of the prominent challenges of the post-modern waterfront is the cultural mission of the public domain in waterfront spaces.

## **2.2.2 The waterfront as a unique cultural public domain**

### **Concept and evolution of public spaces**

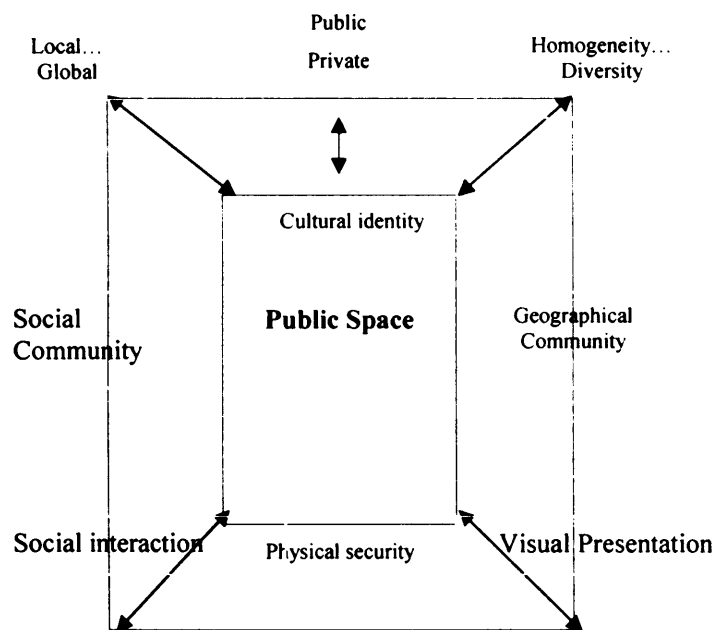
The notion and function of public space has changed and evolved over time because it has been associated with the paradigms of particular periods and with the representation of a socio-cultural ambience in physical form in urban space. In addition, the rapid economic and socio-culture change, especially the transformation from the modern to post-modern periods, produced new types of public space that accommodates the new needs of society such as suburban shopping malls, the indoor arcade, the atrium, and the pedestrian shopping mall.

In particular, in the post-modern era, the role of public space needs to embrace diversity, complexity and the multi-cultural aspects of society (Figure 2.16). The functions of public space are characterised by their role as a socio-cultural container. Because of the importance of public domain’ socio-cultural functions, “Since the late 1980s, the public space has been a

subject of intense interest. It was the key to urban renewal strategies all over the world” (Hajer & Reijndrop, 2001:7). According to Zukin (1995: 24):

Creating a public culture involves both shaping public space for social interaction and constructing a visual presentation of the city. Who occupies public space is often decided by negotiations over physical security, cultural identity, and social and geographical community. [...] because of the complexity and diversity of urban populations. Today the stakes of cultural reorganisation was most visible in three basic shifts in the source of cultural identity. From local to global image, from public and private institutions, from ethnically and racially homogeneous communities to those that are more diverse, these rather abstract concepts have a concrete impact on framing urban public space (Zukin, 1995: 24).

**Figure 2.16: The Framing of public space**



Source: Zukin (1994, p25)

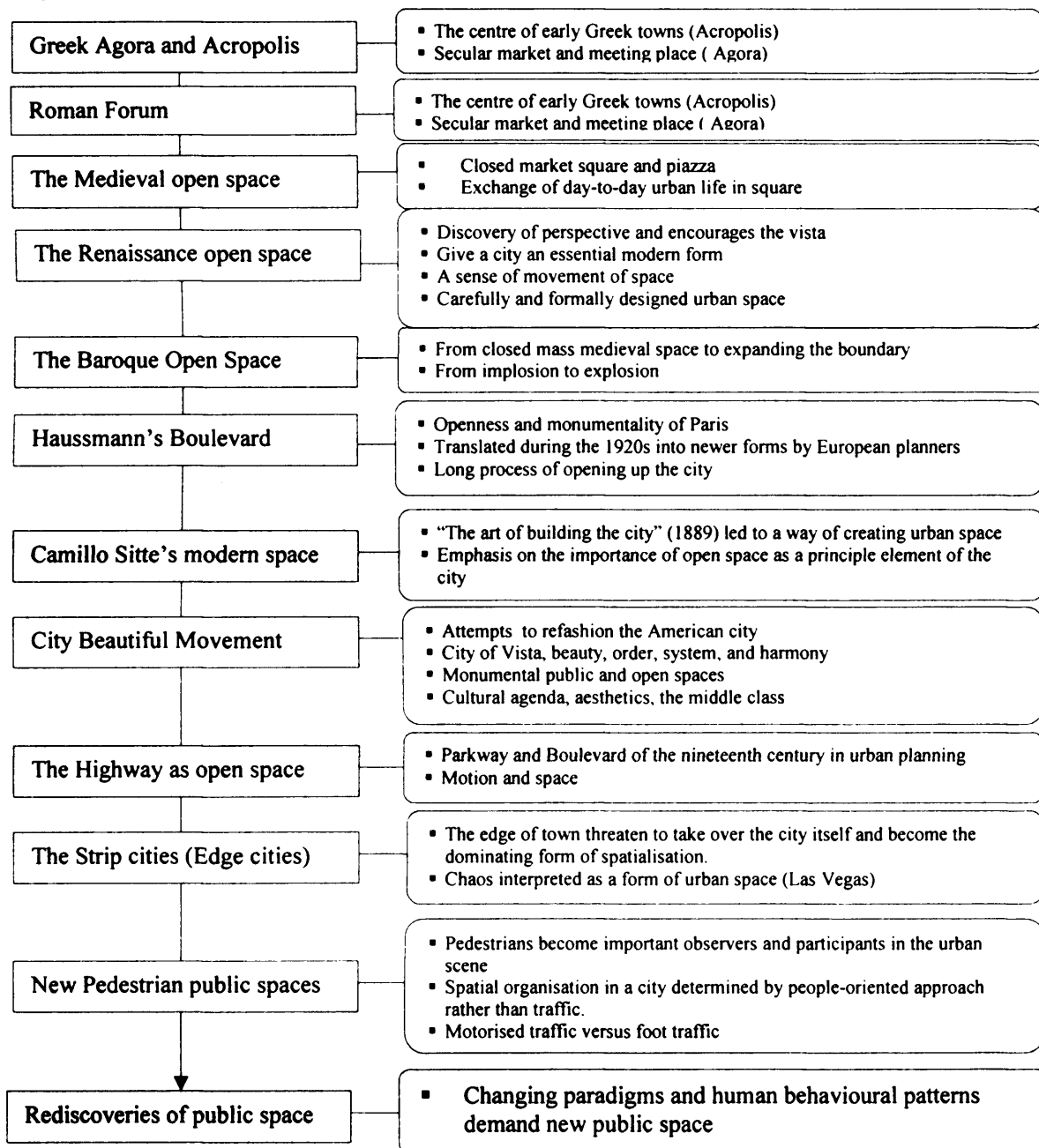
From a historical perspective, as Figure 2.17 and Figure 2.18 demonstrate, “the historical evolution of public space has given us the wide variety of overlapping types existing today” (Carr et al, 1992: 79). Each type of public space functions in different ways to meet the socio-cultural demands of each age. As Carr’s typology of contemporary urban public spaces shows (Figure 2.18), post-modern society produced various types of public space as a result of the socio-cultural transformation and restructuring of the world economy. In particular, the shift from a production-based industrial society to a consumption-based deindustrial society needs various types of public spaces as a means to meet the new paradigm.

Whether this is by chance or not, large and underused urban waterfront land provided a great potential for a new public domain to project post-modern urban life styles. In addition, with water features’ physical, social and psychological significance to human beings and the large amounts of available land near to cities, waterfronts easily become potentially significant



places for the public domain. Furthermore, physical openness and the natural landscape provide great opportunities to create quality urban public space. Because of the existence of historic heritage and “a symbiosis of nineteenth-century patterns and twentieth-century use” (Meyer, 1999: 235), waterfronts provide historic richness and a sense of place. At the same time, their regeneration also provides great potential for cultural uses and activities, which is the key paradigm of post-modern society, the so-called ‘cultural turn’ (Knox and Pinch, 2000; Norton, 2001).

**Figure 2.17: The historical evolution of urban public space**



**Note:** The descriptions in the text boxes are summarised from ‘Open Spaces; the life of American cities’ (Heckscher, 1977), ‘Public space’ (Carr et al, 1992) and the author.

**Figure 2.18 A typology of contemporary urban public spaces**

<b>Types</b>		<b>Characteristics</b>
<b>1. Public Parks</b>	Public/central parks	Publicly developed and managed open space as part of the zoned open space system of city; the open space of citywide importance; often located near the centre of the city; often larger than a neighbourhood park.
	Downtown parks	Green parks with grass and trees located in downtown areas; can be traditional, historic parks or newly developed open space.
	Commons	A larger green area developed in older New English cities and towns; once pasture areas for common use; now used for leisure activities.
	Neighbourhood parks	Open space developed in residential environments; publicly developed and managed as part of the zoned open space of cities, or as part of new private residential development; may include playgrounds, sports facilities, etc.
	Multi/est-pocket park	Small urban park bounded by buildings; may include fountain or water features
	Central squares	Square or plaza; often part of the historic development of the city centre; may be formally planned or exist as a meeting place of streets; frequently publicly developed and managed
<b>2. Squares and Plazas</b>	Corporate plaza	Plaza developed as part of new office or commercial building(s), often in downtown areas but increasingly part of suburban office park development; built and managed by building owners or managers; some publicly developed examples but primarily privately developed and funded
<b>3. Memorials</b>	Memorials	Public place that memorialises people or events of local and national importance
<b>4. Markets</b>	Farmers' markets	Open space or streets used for farmers' markets or flea markets; often temporary or occurring only during certain times in existing space such as parks, downtown streets or parking lots.
<b>5. Streets</b>	Pedestrian paths/sidewalks	Parts of cities where people move about on foot; most commonly along sidewalks and paths, planned or found, that connect one destination with another
	Pedestrian malls	Street closed to auto traffic; pedestrian amenities provided such as benches and planting; often located along main street in downtown area
	Transit malls	Development of improved transit access to downtown areas; replacement of traditional pedestrian malls with bus and "light rail" malls.
	Traffic restricted streets	Streets used as open public space; traffic and vehicle restriction can include pedestrian improvements and sidewalk widening, and street tree planting.
	Town trails	Connect parts of cities through integrated urban trails; use of streets and open spaces planned as setting for environmental learning; some are designed and marked trails.
<b>6. Playgrounds</b>	Playgrounds	Play area located in neighbourhood; frequently includes traditional play equipment such as slides and swings; sometimes include amenities for adults such as benches; can also include innovative designs such as Adventure Playgrounds.
	Schoolyards	Schoolyard as play area; some developed as a place for environmental learning or as community use spaces.
	Community Garden Parks	Neighbourhood spaces designed, developed, or managed by local residents on vacant land; may include viewing gardens, play areas, and community gardens; often developed on private land; not officially viewed as part of open space system of cities; often vulnerable to displacement by other uses such as housing and commercial development.
<b>7. Community open spaces</b>		
<b>8. Greenways and parkways</b>	Interconnected recreational natural areas and	Natural areas and recreational spaces connected by pedestrian and bicycle paths
	Atrium	Interior private space developed as indoor atrium space; an indoor, lockable plaza or pedestrian street; counted by many cities as part of open space system; privately developed and managed as part of new office or commercial development.
<b>9. Atrium/indoor marketplaces</b>	Marketplace/downtown shopping centre	Interior, private shopping areas, usually free standing or rehabilitation of older building(s); many include both interior and exterior spaces; sometimes called "festival marketplaces; privately developed and managed as part of new office or commercial development
<b>10. Found spaces/ everyday open spaces</b>	Found spaces/everyday open space	Publicly accessible open space such as street corners; steps to buildings, etc., which people claim and use; can also be vacant or undeveloped space located in neighbourhood including vacant lots and future building sites; often used by children and teenagers, and local residents
	Waterfronts, harbours, beaches, riverfronts, piers, lakefronts	Open space along waterways in cities; increased public access to waterfronts; development of waterfront parks.
<b>11. Waterfronts</b>		

Source: Carr et al (1992, p79)

Interestingly, most of the major cities in the world are located on waterfronts (Figure 2.19). Some cities have harbours and others have rivers, canals and lakes. Most cities which have waterfronts, have inevitably strongly bonded with the existence of the water to create their identity. Hence, “the water area is an essential component of the cityscape and has an important functional role. The area not only marks the boundary of the land part of the city, but is itself a part of the city, affecting its climate, its way of life as well as its economic function” (Pun, 1993: 202). Waterfronts also turn out to be “a new laboratory of urban quality” (Bruttomesso, 2001) to project the new cultural paradigm which is normally described in post-modern or post-industrial society. To sum up, the advantage of the water’s physical openness with the natural landscape provides a great opportunity to meet the demands of the cultural mission of public space in postmodern society.

**Figure 2.19: Major cities on waterfronts**

	<b>Europe</b>	<b>North America</b>	<b>Asia</b>	<b>Australia</b>
<b>Cities</b>	Antwerp	Boston		
	Bordeaux	New York(R+C)		
	Bristol(R)	Baltimore(H)		
	Dordrecht	Washington DC(R)		
	Dublin(R)	Chicago(L)		
	Genoa(H)	St. Louise(R)	Tokyo (B)	
	Hamburg	San Francisco(B)	Osaka (H)	
	Lübeck	San Juan	Bangkok (R)	
	St. Petersburg(R)	Pittsburgh	Hong Kong (H)	Sydney (H)
	Marseilles(H)	Minneapolis(R)	Shanghai (R)	Melbourne (R)
	London(R)	Philadelphia(R)	Kobe(B)	
	Rotterdam(R)	San Antonio(R)	Yokohama (H)	
	Barcelona(H)	San Diego	Seoul (R)	
	Amsterdam(C)	Seattle(B)		
	Venice(C)	Los Angeles(B)		
	Paris(R)	Toronto(L)		
	Glasgow(R)	Vancouver(H)		

**Note:** River (R), Bay (B), Harbour (H), Canal (C) and Lake (L)

## **2.3 The role of urban design in post-modern society**

### **2.3.1 The evolution of urban design theory and practice**

“Although the term urban design was apparently coined in North America in the late 1950s” (Rowley, 1994: 180), the origin of contemporary urban design theory and practice can be traced back to the industrial revolution when people tried to address the condition of the overcrowded industrial cities. If contemporary urban design theory can be said to start from the industrial revolution, then the genealogy of contemporary urban design theory and practice might be divided into four broad phases (Figure 2.20):

1. from the exploration of, and the challenges facing the industrialising city (premodern – between the 1880s and 1890s)
2. when urban planners implemented planning theory (modern - between the 1900s and 1960s)
3. the period in which the urban planner examined the problems of theory and practice, and proposed new urban design theories for changing urban circumstances (postmodern – between the 1960s and 1980s)
4. the period to search for a new language for designing post-modern urban space (postmodern – between the 1990s and 2000s)

As Figure 2.20 shows, the evolution of urban design theory and practice have been strongly related to: 1) the urban condition of the age; 2) philosophy/ideas on urban space design; 3) and the paradigms and needs of the age. It seems that urban design has evolved to solve the problem of the urban condition, create new urban space through visionary ideas, and to meet the demands of the paradigm of the age. To take an example of a visionary idea which shaped urban space during the industrial revolution in London, the ‘Garden City’ movement by Ebenezer Howard was the solution for the problem of the congested, polluted and unhealthy nineteenth century industrial city (Jacob & Appleyard, 1987: 113). Similarly, The ideas of the ‘boulevard system’ by Haussman, Ville Radieuse by Le Corbusier and The City Beautiful movement by Burnham can all be said to be the visionary ideas for designing urban space at the beginning of the twentieth century.

Figure 2.20: The genealogy of urban space design development

Phase	Period	Principle figures	Formation	Theme
Forming theory	Pre-Modern	□ Edwin Chadwick	□ Public Health Act (1845)	□ Improve sanitation & living conditions for the poor
		□ Baron Haussmann	□ Boulevards in Paris (1855-69)	□ Openness, axis concept and monumentality, translated during the 1920s into newer forms by European planners.
		□ Camillo Sitte	□ City planning according to artistic principle (Sitte, 1889)	□ Aesthetic-visual design of urban space from the analysis of historic examples (the medieval Italian city)
		□ Unwin	□ Town Planning in Practice (1909)	
		□ Daniel H. Burnham	□ The city beautiful (1893)	□ The city as a network of formal streets and space, marked by striking monuments
		□ Ebenezer Howard	□ Garden City (1898)	□ Ideal suburban community design for the overcrowded industrial city
	Modernism	□ Tony Garnier	□ Cité Industrielle (1904)	
		□ Le Corbusier	□ City for three million inhabitants (1922), Ville Radieuse (1935)	□ City in terms of efficiency and function
		□ Clarence Stein	□ Neighbourhood in Radburn N.J. (1929)	□ Focused on a community centre in design
		□ Harvard University	□ The first Urban Design Conference (1957)	□ Investigation of the modern urban space and its challenge
		□ Manfredo Tafuri	□ Institute of the history of the school of architecture in Venice (1968)	□ Architecture and utopia – sees the city in terms of Marxism
		□ Aldo Rossi	□ The architecture of the city (1966)	□ The idea of typology, collective memory – our concept of the city will remain in our memory
		□ Carlo Aymonino	□	□ The study of dwelling typology
		□ Antony Vidler	□ The third typology (1977)	□ Types for whole architecture, served to legitimate the production of architecture – three types (nature, industrial revolution and rationalism)
		□ Rodrigo Pérez d'Arce	□ Urban transformation (1978)	□ Urban growth by extension, substitution and additive transformation
		□ Robert Krier	□ Project for Leinfelden in Stuttgart (1970), and Tower Bridge Housing (1973), Urban Space (1975)	□ Urban typology – typology of urban space (street, square and open space)
Practice	Post-modernism	□ Leon Krier	□ La Villette in Paris (1976)	□ Urban Quartiers – restore social, economic and cultural health of city from destructive zoning system
		□ Ramón Reventós, Francesc Folguera	□ Pueblo Español for Barcelona exposition (1929)	□ Combination of historical elements to create a whole image of a village
		□ Clough Williams-Ellis	□ Portmeirion Village (1925-1978)	□ Portmeirion designed over 50 years-growth and change
		□ Gordon Cullen	□ Townscape (1961), the concise Townscape (1971)	□ Visual matter evokes our memories and experience, new town of Mayculter (1974)
		□ Kevin Lynch	□ The image of the city (1960)	□ Good city form, imageability, legibility, and analytical tool (paths, edges, districts, nodes and landmarks)
		□ François Spoerry	□ Port Grimaud (1963)	□ Picturesque design in the 1930s
		□ Christopher Alexander	□ A Pattern Language (1977)	□ Empirical, pragmatic approach to towns, buildings and construction
		□ Robert Venturi	□ Contradiction and complexity in architecture (1966), Learning from Las Vegas (1972)	□ Argument for architecture and urban space in terms of complexity and contradiction
		□ Robert Stern (1977)	□	□ Postmodern design principle –contextualism, allusionism and ornamentalism
		□ Charles Moore	□ Body, memory and architecture (1977), Kresge College (1966-74), Piazza d'Italia (1975-78)	□ Overcome limitation of a functionalist and mechanic approach through studying the philosophy of perception (e.g. dancers treat space as real stuff)
	Evaluation	□ Colin Rowe & Fred Koetter	□ Collage city (1975)	□ The notion of Collage City accommodates both hybrid display and the requirement of self-determinism in townscapes.
		□ Francis Tibbalds	□ Urban design framework of ten principles (1988)	□ As a response to the framework for architectural design offered by The Prince of Wales
		□ Allan Jacobs & Donald Appleyard	□ Towards an Urban Design Manifesto (1987)	□ Seven goals essential for the future of a good urban environment
		□ Jane Jacobs	□ The life and death of great American cities (1961)	□ Against functional and mechanical city development, showing the importance of social diversity and human scale in a city
		□ Jonathan Raban	□ Soft cities (1974)	□ Criticising scientific and functional urban planning
		□ Italo Calvino	□ Invisible cities (1974)	□ Emphasis on the invisible elements (social aspects) for the presence of cities and life
		□ Mark Davis	□ City of quartz (1990)	□ Illustrate the social and geographical divisions which result from the modernistic urban development
		□ Allen Scott, Edward Soja, Michael Storper in UCLA	□ Los Angeles School (1986)	□ Importance of Los Angeles 'as the world's first certified post-modern/post-industrial city' (Curry & Kenney, 1999)
		□ Centre for New Urbanism	□ New Urbanism (1999) *(Smart Growth, Growth Management, Regionalism)	□ To re-establish the making of community The art of building through citizen-based participatory planning and design
		□ Urban Village Forum	□ Urban Village Movement (late 1980s)	□ Neo-traditional movement in designing communities
Challenge				

Note: 1. The contents in the table summarise descriptions from 'emerging concept in urban space design' (Broadbent, 1996), 'Urban Landscape Dynamics: multi-level innovation process' (Curdes, Momtani & Forsyth, 1993), 'Public places – Urban spaces: dimension of urban design' (Carmona et al, 2003), 'Definition of Urban Design: the nature and concerns of urban design' (Rowley, 1994), 'The paradigmatic city: post-industrial illusion and the Los Angeles School' (Curry & Kenney, 1999), 'Toward an Urban Design Manifesto' (Jacobs & Appleyard, 1987), 'A century of urban design' (Dunster, 1999), 'Architecture, theory, since 1968' (Hays, 1998) and 'Theorising a new agenda for architecture' (1996, Nesbitt). The categorisations in the table – forming theory, practice, evaluation and challenge – are done by the author. 2. \* 'Smart Growth', 'Growth Management', 'New Urbanism' and 'Regionalism' are overlapping approaches in a loosely joined movement to address problems of sprawl (Wheeler, 2002 quoted in Baum, 2004:15). 3. Smart Growth and other growth management strategies emphasize land use planning. New Urbanism focuses on design. Growth management and regionalism also attentive to land use, include interests in taxation and public finance, and regionalism adds a concern with governance (Baum, 2002:15).

In terms of the evolution of urban design to solve urban problems, in *Toward an Urban Design Manifesto*, Appleyard (1987) pointed out the problems of modernist urban design, and proposed a new direction in the design of urban space (Figure 2.21). He emphasised the importance of socio-cultural, open space for public life, as the key aspects when designing physical urban form.

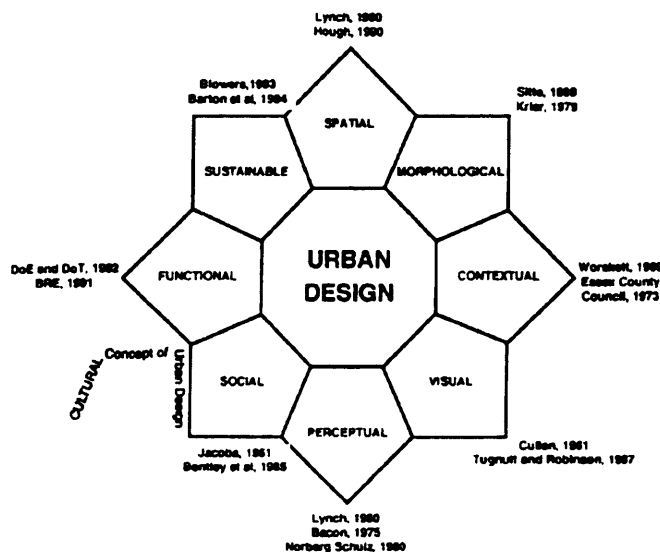
**Figure 2.21:** The transition of an urban design approach from modern to post-modern

<b>Problems for modern urban design</b>	<b>Goals for new urban life (direction of post-modern urban space design)</b>
poor living conditions	liveability
giantism and loss of control	identity and control
large-scale privatization & the loss of public life	access to opportunities, imagination, and joy
centrifugal fragmentation	authenticity and meaning
destruction of valued places	community and public life
Placelessness	urban self-reliance
injustice	an environment for all
rootless professionalism	

**Note:** Contents in the table summarised by author based on Jacobs and Appleyard (1987)

The agenda of urban design (Figure 2.22) evolved and expanded the scope of the urban development process from early industrial and modern to post-industrial society: from visual to perceptual; from the form of the built environment to the meaning and identity of the place and space; from functional/physical to socio-cultural; from large-scale to piecemeal and contextual.

**Figure 2.22:** The conceptualisations of urban design thought



Source: Carmona (1996, p95)

**Note:** The cultural concept of urban design has been added to the original diagram by author.

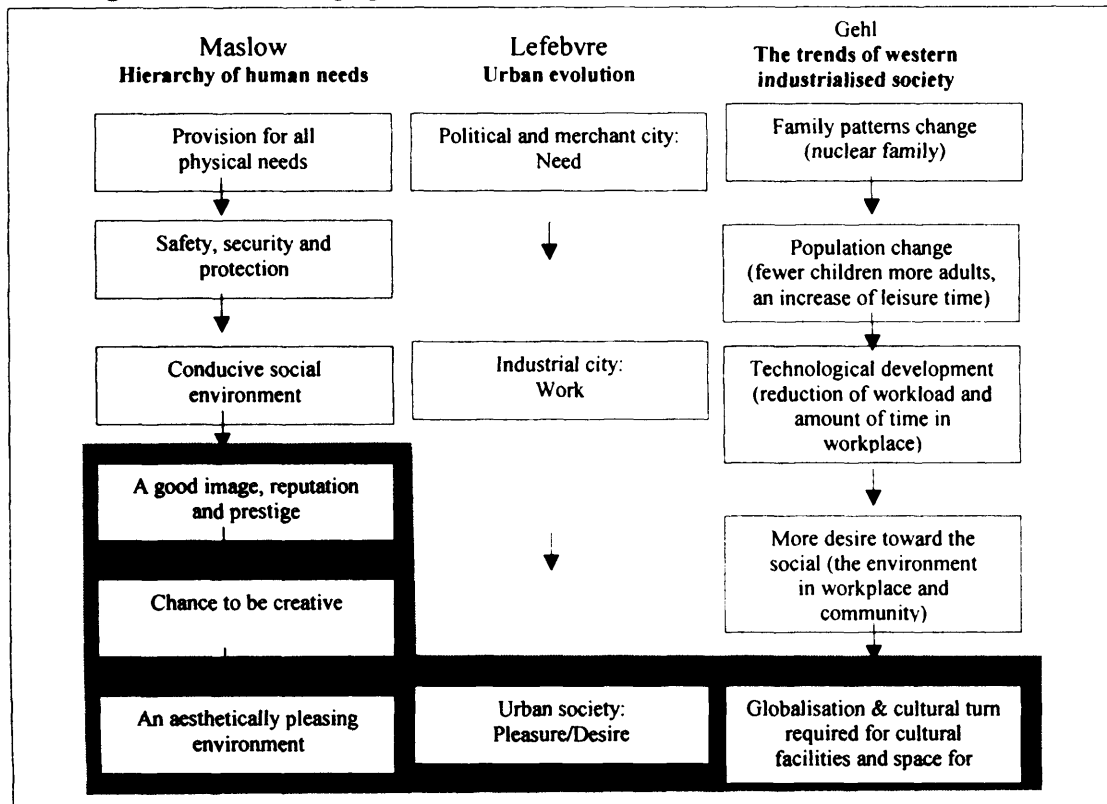
### **2.3.2. The role of urban design in postmodern society**

The role of urban design theory and practice for post-modern and post-industrial urban space can be understood through an investigation of the characteristics of post-modern and post-industrial society in terms of the paradigm which shapes the urban environment and the post-modern urban landscape. The previous sections have already examined the theoretical context of post-modernism (Figure 2.6). Post-modernity was characterised by two main paradigms – ‘cultural turn’ and ‘spatial turn’. These paradigms symbolised heterogeneity, indeterminacy, fragmentation, difference, diversity, eclecticism, and scepticism over modernist values (Jencks, 1984; Hassan, 1985; Harvey, 1989; Jameson, 1991; Foucault, 1993; Soja, 1996; Lyotard, 1999; Norton, 2000).

The urban landscape in the post-modern period has undergone a dramatic restructuring process. “Industrialisation, technological developments (e.g. railways, the internal combustion engine) and social and economic developments (e.g. hospitals, large offices, and hotels) along with the rapid growth of capitalism from the late nineteenth century and the first half of twentieth century” (Carmona et al, 2003; 21) resulted in the expansion and reorganisation of the city. In addition, transportation technology – the train and automobile - during the 1950s and 1960s accelerated the expansion and restructuring process of the city (Hall, 1993). Transportation technology made it possible for people to move to the suburbs from the polluted and congested urban core. In addition, information and communication technology influenced the physical and socio-cultural life in modern industrial cities. These transformations of the urban landscape have been well documented in Dear’s *Postmodern Urban Condition* (2000), which depicts the post-modern urbanisation process and cities, especially Los Angeles, as a ‘culture of Heteropolis’ (Jencks, 1986), an ‘edge city’ (Garreau, 1991), a ‘city as a theme park’ (Sorkin, 1992), and a ‘fortified city’ (Davis, 1990).

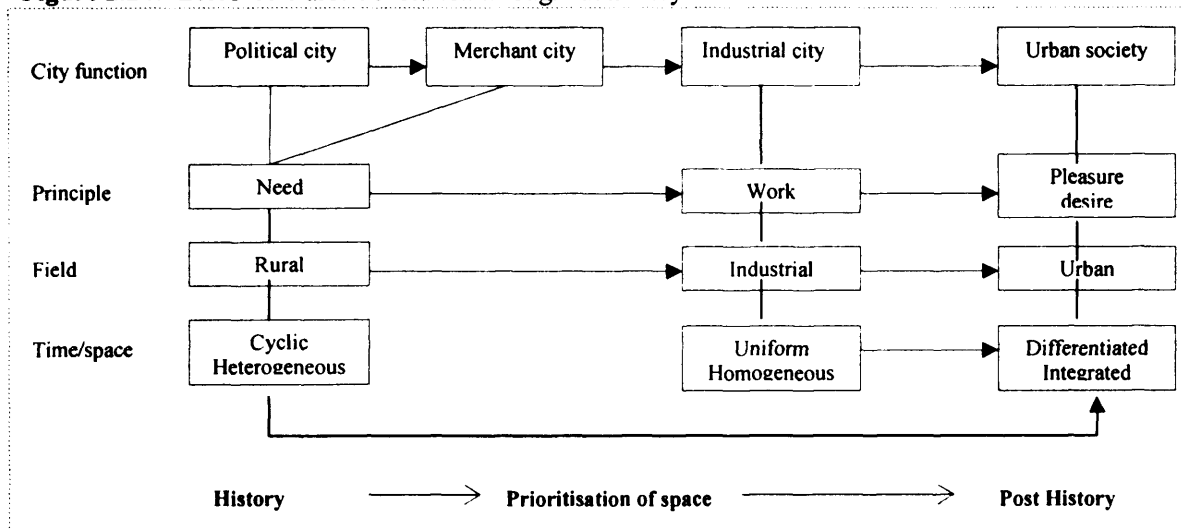
The physical, economic and socio-cultural changes from modern to post-industrial society resulted in new lifestyles and values. Nuclear family patterns and the reduction of working time through advanced technology led to more leisure activities (Gehl, 1987). Because of the surplus of time and labour, human needs moved from fundamental demands to more social, leisure and entertainment-oriented needs (Maslow quoted in Frey, 1999). Lefebvre (2000) also describes the urban transition from political/merchant city, and industrial city to urban society characterised by ‘pleasure’ and ‘desire’ (Figure 2.23 and Figure 2.24).

**Figure 2.23: The changing socio-cultural demands from modern to post-modern society**



**Note:** Contents in the Figure above collected by author based on the following books: *Designing the city* (Frey, 1999) for Maslow's hierarchy of human needs; *Geographical Imaginations* (Gregory, 1994) for Lefebvre's urban evolution; and *Life between buildings* (Gehl, 1987) for The trends of western industrial society. The shaded area represents the characteristics of post-modern society.

**Figure 2.24: Lefebvre's urban evolution throughout history**



**Source:** Gregory (1994, p371)

The challenge of urban space design (urban design) in this post-modern urban landscape might comprise two processes. One might be the removal of the problems of the post-modern/post-industrial urban landscape. The other might be the fulfilment of the demands from the post-modern paradigm (Figure 2.24) – pleasure, leisure, socio-cultural activities, and the importance of diversity. As a result, designing post-modern urban spaces requires the



provision of places where those needs can take place. Through this, it may be possible to resolve social and spatially fragmented post-modern urban communities and life. Thus, radical shifts in economic, social, cultural and built environments under post-modern urbanisation results in challenges for urban design theory, process, and practice. Investigating what the role of urban design is in post-modern urbanisation will thus be valuable in understanding the challenges of urban design in the post-modern urban landscape.

Rowley (1994) described the role of urban design in terms of ‘considerations’, ‘motives’, and ‘modes of actions’, while recognising its multi-faceted nature as expressed by practitioners, researchers and scholars (Figure 2.25). Appleyard (1982) also argued that there are three kinds of urban design practice (Figure 2.25) (in Rowley, 1984: 192).

**Figure 2.25:** Appleyard’s three kinds of urban design

	<b>1. Developments</b>	<b>2. Conservation</b>	<b>3. Community</b>
<b>Economic Context</b>	Growth or desire to grow	Overgrowth Prosperity	Stagnation Decline
<b>Clients</b>	Developers cities	Conservationists Cities	Neighbourhoods Low/middle income
<b>Motives</b>	Economic development Attracting market profit	Conservation Environmental quality	Job creation Community development Livability Revitalisation
<b>Activities</b>	Market analysis Development packaging	Environmental survey Regulations Guidelines	Citizen participation Piecemeal projects Low cost improvement Social environmental survey

**Source:** Rowley (1994, p192)

Carmona et al (2003: 23) addressed the role of urban design under post-modern urbanisation by pointing out the problems of the modernist urban space design process, which is characterised by: lack of participation and involvement; lack of preservation of the historical environment; mono functional space and a zoning approach; a lack of understanding of good urban form such as streets and squares; monolithic architectural styles; and finally, the necessity of conversion from car-oriented to people-oriented cities.

With the evolution in urban design shown in the previous section, the emphasis of urban design theory and practice changed to implementation focusing on social and cultural diversity in urban space through urban design intervention. In addition, one of the techniques that has been used as a tool for urban development in recent years is that of cultural regeneration (Wansborough & Mageen, 2000; Montgomery, 1995; Basset, 1993; and Wynne, 1989). Severe criticism focuses on a lack of social diversity and human scale, and on the

importance of the invisible elements beyond the physical built environment by authors such as Jacobs (1961), Raban (1974) and Calvino (1974), who became a turning point for urban planners in their approach to the design of the new urban landscape. In other words, the importance of users, their perceptions and experiences of urban space began to draw attention in the design process to implementation and process. Meyer (1999: 19) argued that “In recent decades, urban planners have tried to separate the [social and cultural aspects of the] spatial design of urban areas from functionalist principles to pay attention to the cultural significance of the urban form”.

Thus, the role of urban design needs to reflect the post-modern paradigm, which has already been examined in section 2.1 – the growing importance of cultural identity, diversity, and the quality of life in urban spaces, that is, “what is needed in urban design today [post-modern] is a re-calibration of our ideas to the currency of our time” (Marshall, 2001: 3). “Urban design provides a means of improving the quality of people’s lives through the creation and subsequent maintenance of a liveable and sustainable environment” (Urban Design Alliance, 2001). In addition, to create good quality urban environments and resolve problems caused by the rapid urbanisation process, urban design is arguably needed more today than before.

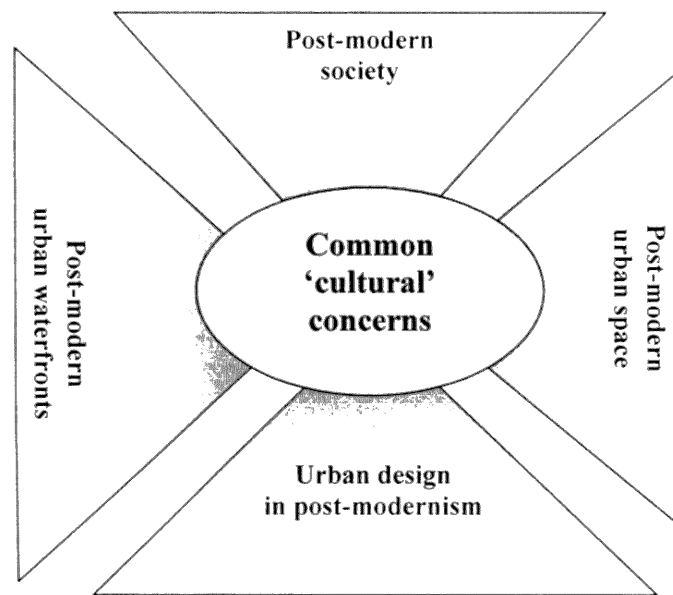
## **2.4 Conclusions**

### **2.4.1 Common cultural concern in urban design and waterfronts in post-modern era**

So far, the previous sections have examined the notion of culture, the characteristics of post-modern culture and its theoretical background, and the post-modern urban landscape. At the same time, the potential of the post-modern waterfront for cultural and public use was investigated. In addition, the role of urban design as a tool to deliver post-modern paradigm was discussed.

The most important findings from the above examination are the common ‘cultural concerns’ in post-modern society, the reuse of underutilised post-modern urban waterfront, and designing post-modern urban space (urban design), especially urban waterfronts (Figure 2.26). In addition, Figure 2.27 also illustrates a common cultural importance in 1)urban design, 2) redevelopment of waterfronts in 3)postmodern era in terms of their paradigm shift.

**Figure 2.26:** The common cultural demands among urban design, the post-modern city and the waterfront

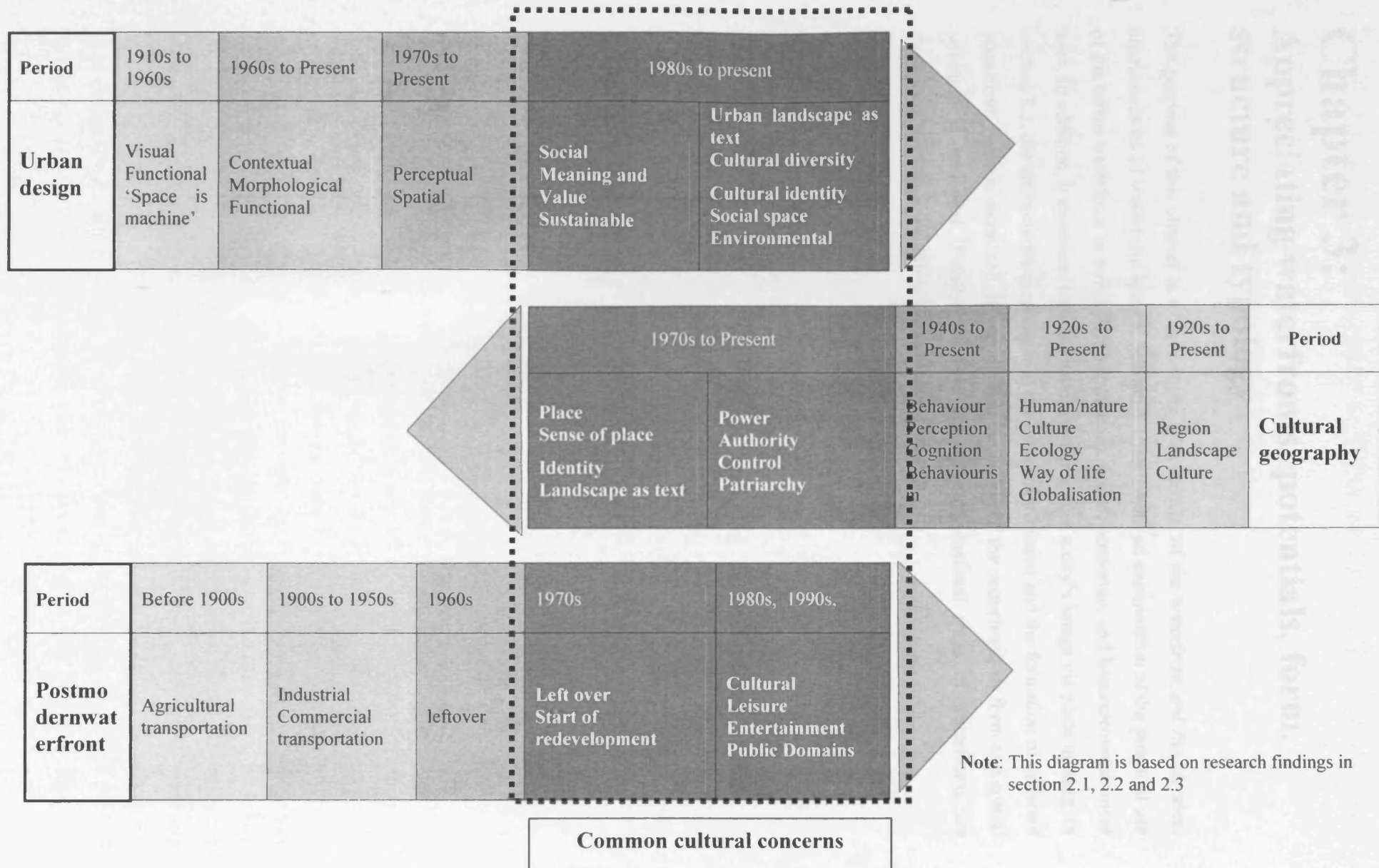


The issue of culture – cultural turn - is the most important concern in the three realms (Cook et al 2000; Knox & Pinch, 2000). In addition, the new way of perceiving urban space from physical container to socio-cultural container – ‘spatial turn’ – provides an important foundation for the design of post-modern urban space (Foucault, 1986; Harvey, 1989; Lefebvre, 1991; Soja, 1994; Jameson, 1995; Lyotard, 1999; Hubbard et al 2004).

In particular, underutilised urban waterfronts were paid great attention as places where the two paradigms could be experimented with, especially for cultural and public use. In other words, post-modern urban waterfronts provide an opportunity to express post-modern culture, and cultural uses and activities (Norcliff et al, 1996). At the same time, they also provide an opportunity to experiment, creating a place which produces a socio-cultural environment.

However, the reuse of post-modern urban waterfront spaces for the cultural public domain requires two important questions to be answered: 1) what is the proper spatio-functional form to accommodate cultural uses and activities?; 2) what kinds of cultural components create a cultural ambience on waterfronts? To facilitate answering the above two questions, it is essential to examine both the spatio-functional characteristics of the urban waterfront and successful waterfront redevelopments, which explain how components create culturally oriented waterfronts. Chapter 3 and Chapter 4 will provide opportunities to answer the two questions above.

**Figure 2.27:** A common cultural factor in urban design, cultural geography and the potential of post-modern waterfront space



# **Chapter 3:**

## **Appreciating waterfronts: potentials, form, structure and typology**

The purpose of this chapter is to investigate the potential of the waterfront and the physical characteristics of waterfront spaces. Section 3.1 starts with an examination of the potential use of the urban waterfront in terms of transportation, social, economic, and leisure/entertainment uses. In addition, it examines how the waterfront enhances a city's image via place making. In section 3.2, the characteristics of water in the built environment and the formation of different waterfront types is examined. In section 3.3, the notion of the waterfront, its form and spatial structure is reviewed. Finally, the two and three-dimensional traits of waterfronts are examined. Section 3.4 summarises the major findings.

### **3.1 Urban waterfront space as form and its cultural potential as content**

In the previous chapter, the great potential of the cultural public domain of the post-modern waterfront space was reviewed. The relationship between cultural uses and the postmodern waterfront space can be said to be the relationship between form and content. In particular, an examination of the cultural uses of waterfront spaces requires an in-depth understanding of the form which accommodates that content. As discussed in section 2.1, any notion of cultural uses needs to reflect many different aspects of life style, functions and activities. Because of this, the design of physical built environments on the waterfront also requires careful consideration during the redevelopment process and in the formation of the spatial structure. It might be true that a certain type of form of the built environment is more suitable to certain types of functions and activities. In the same way, there might be culturally oriented spatial forms which can more effectively accommodate cultural contents. Lefebvre (2000: 10) argues that:

Forms are derived from differences of content and in turn codify the practices with which a particular content operates. Their emptiness gives them a great versatility and capacity for renewal and combination (Lefebvre, 2004:10).

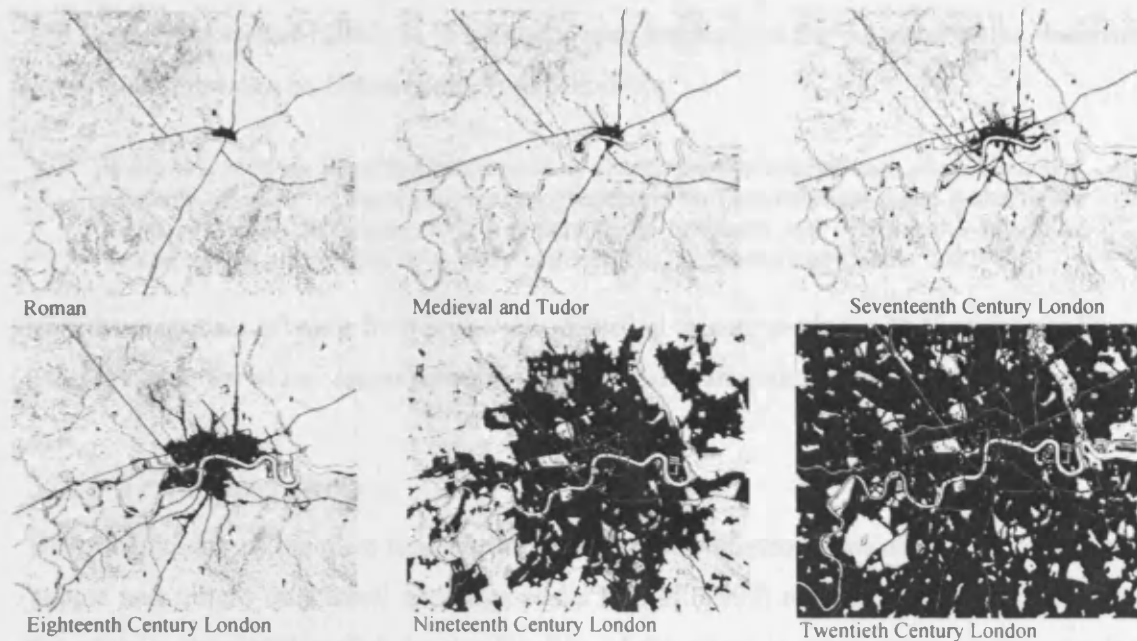
He continues that “there is no form without content. No content without form” (2000: 135). Thus, it is important to understand the physical characteristics of waterfront space, as a form that contains certain contents, especially cultural uses and activities. This will be investigated in this chapter.

### **3.2 The evolution and potential of the waterfront**

Most cities evolved from settlements established along waterfronts where water has been available to sustain life and society from ancient times to the present. Human civilisation and life itself is unthinkable without water. People have built their social communities around wells and rivers where they can drink and obtain water for agriculture. In many respects, the expansion of cities depends on the range of the water supply network even though technology overcomes the distance of the water supply network. “If there is any single most important factor limiting human development on our planet, then it must surely be problems with water quality and quantity” (Jones, 1995: 16). It is quite true that water, the growth cities and sustaining human society are inseparable. According to Vallega (2001: 383), “the world’s population is expected to exceed 8 billion by the year 2020. Sixty percent of the world’s population already lives in coastal areas, while 65 percent of cities with population above 2.5

million are located along the world's coasts". Because of the inseparable link between water and the development of human civilisation, water has sustained not only physical human settlements but also the social and cultural environment, which has developed along waterfronts (Figure 3.1).

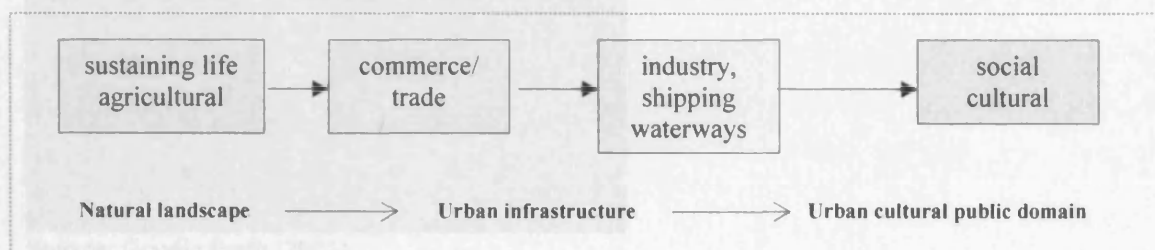
**Figure 3.1:** The evolution of London along the River Thames



Source: Jones & Woodward (2000, p11-23)

The inseparable link between water and human settlements created port and city relationships based on the waterfront along canals, lakes, rivers and the sea. Konvits (1994: 295) explains the relationship between port and city in a poetic way: "The relationship between ports and cities readily lends itself to contrasts. Ships suggest mobility; cities, the fixed and immobile structures of civilisation. Ships disperse goods and people; cities concentrate them". As discussed in section 2.2 (Figure 2.11 and 2.12), the relationship between the waterfront and human settlements, and the function of the waterfront have also evolved over time. However, there was a dramatic transition in this relationship between the modern and post-modern period, characterised by sudden disuse and underutility. The reuse of the underutilised waterfront spaces provides new opportunities for the cultural public domain (Figure 3.2).

**Figure 3.2:** Change of usage patterns of waterways



In the words of Shaw (2001: 160):

The popularity of waterfront development owes much to the fact that virtually every city has a downtown waterfront that offers a mix of scales and uses close to the centre, offering an urban quality while at the same time providing new development opportunities. Water, the primary human resource, was the reason for the original location, providing means of transport, defence, leisure and recreation (Shaw, 2001: 160).

The Waterfront Centre (2002) in Washington also emphasised the potential of the waterfront development through its Urban Waterfront Manifesto:

Water is a defining force that fundamentally shapes the character of each place it touches. The role of water in transport, industry, sanitation and nourishment made it the *raison d'être* of human settlement. It is a feature to be honoured and celebrated – not to be treated merely as cosmetic or as just a commodity (The Waterfront Centre, 2002: 1).

Various potentials of waterfront space are identified in conjunction with the city and human life. However, seven key major functions are especially important in the postmodern era.

### 3.2.1 Transportation

Historically, one of the most fundamental roles of the waterfront was as a transport route for people and freight on a small and large-scale. Kostof (1992) regarded “waterways as one of the various street patterns”. Like the function of the street in urban space, waterways form important cycling, walking, jogging and connection routes to other destinations using both the banks of the waterway and the water itself. It is hard to imagine the existence of cities like Venice and Amsterdam without canals as transport systems which are, in many respects, tools for communicating and sharing social activities (Figure 3.3). Because of the natural setting, the waterfront is an aesthetically enhanced street type compared to ones inland. Therefore, using a watercourse as transportation – river, canals, and coastline – provides a high quality urban passage for users.

**Figure 3.3:** The network of waterways in Venice



Source: Google Earth (2005)



### 3.2.2 The economic potential of waterfronts

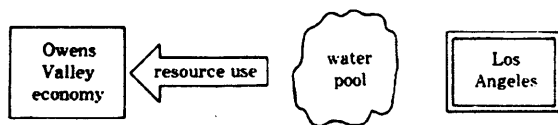
Water resources have played an important role in making cities grow and expand their economic activities. In the words of Barkely (1974),

In the early years of nationhood and during the periods of rapid development, cities, counties and states each faced special water problems. Local economies could not grow without water and the capital value of land and other permanent investments depended upon finding water for municipal or industrial purposes (Barkley quoted in Field et al, 1974: 29).

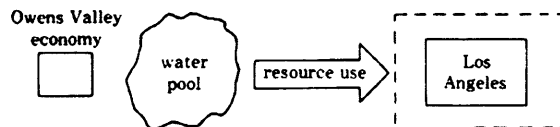
Barkley demonstrated how Owens Valley water resource played an important role in the growth of Los Angeles (Figure 3.4). According to him, “the purchase of Owens Valley and the development of a conveyance system resulted in the continued growth, maintenance of capital values and a stronger community in Los Angeles, but it also ended economic activities, reducing capital values and decimating the community” (Barkely quoted in Field et al 1974: 29).

**Figure 3.4:** Ties between resource pools and local communities

*Before the purchase by Los Angeles:*



*After purchase by Los Angeles:*



**Source:** Field et al (1974, p30)

Water provides a significant basis for generating environmental value, which also increases the economic value of space. For instance, well-designed and maintained water features - such as fountains, wells, rivers, canals and seaside – will create high environmental value for the built environment. The high environmental value created by water features will result in the increased price of land, housing, offices, shops and so on. In this respect, water features become important economic factors producing value-added aspects of the built environment. Recent research, commissioned by CABE (Commissioned for Architecture and the Built Environment) and DETR (Department of Environment, Transportation and the Regions) to examine ‘the value of urban design’ (2001), showed that water features have become

important elements to enhance the socio-economic value of good urban design, as illustrated in case studies. In the Castle Wharf case study, the research concluded that (Figure 3.5):

In a highly constrained site, the development starts to make connections back into the city, across and along the canal to Nottingham's main railway station. It offers an environment that, with its broad range of work and leisure uses, is well used throughout the day and into the night. The key public spaces are well articulated, animated by the range of uses and are highly legible, offering good visual links with surrounding [canal] areas ... good urban design seems to have played a powerful role in giving Nottingham a new group of buildings with outstanding value in financial and broader terms (CABE, 2001: 40).

It can be said that a canal, as an urban design element, played an important role in producing a good environment in Castle Wharf. As a consequence, the good environment contributed to an increase in the economic value of the area and surrounding properties. In addition, Brown and Pollakowski (1977) showed the significance of waterfront space in terms of the economics of water-related open space in urban areas, concluding that proximity to the waterfront actually increased the property values.

**Figure 3.5:** Castle Wharf (the new public space along the canal improved the quality of space)



Source: CABE (2001, p 40)

### 3.2.3 Leisure and recreation

Waterfronts provide significant leisure and recreational activities. Like rivers and canals, waterways have double linear natural structures, and become intrinsic places for leisure and recreation. When they also have historic richness and buildings, the value of their potential use for leisure and recreational purposes can be maximised. Moreover, the waterfront itself becomes a place for sailing, boating, canoeing and water sports. Many civilisations around the world have grown up near to a waterfront because of the necessity of water to sustain life and society. As a result, many of the historical heritage sites and much of the maritime built environment are located along waterfront areas in cities such as London, Paris, Barcelona and the eastern seaboard of America. The historical richness of the waterfront provides tremendous opportunities not only for enhancing the richness between the past and present in the built environment but also for appreciation of the richness of the space for leisure and recreational activities (Figure 3.6).

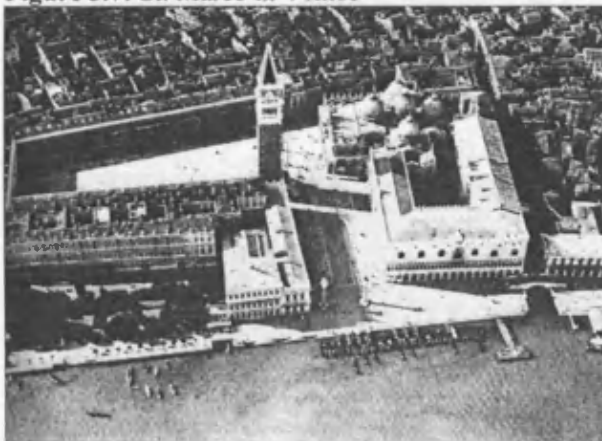
**Figure 3.6:** Recreational activity on a historic ship (the USS Constellation in Baltimore)



### 3.2.4 Historical value and a place for tourism

“The emergence of new tourism-related land uses within historic port cities [waterfronts] has brought a range of physical, economical and social benefits” (McCarthy, 2004: 43). When a waterfront flourished with its historic heritage and natural setting, it is natural for it to become a tourist attraction. For instance, St. Marco Square in Venice has a combination of waterfront, historic buildings and open space, surrounded by the sense of a historic place. The South Bank cultural quarter along the River Thames in London has attracted millions of people every year with the recent addition of the new Tate Modern and the London Eye. Moreover, the regeneration of the rundown Fulton Market Seaport in New York has become a local and national tourist attraction because of the richness of history and the image of the waterfront (Figure 3.7).

**Figure 3.7:** St. Marco in Venice



Source: Morris (1997, p189)

### 3.2.5 Socio-cultural catalyst

“For all history, people depended on fresh water, so its source was always an important place – where people gathered, settlement flourished, and cities were established” (Moore, 1994:

21). It seems natural that four 'hydraulic civilisations' have emerged at the waterfront created by rivers - the Indus river, Huang river, Tigris & Euphrates rivers and Nile river. Their civilisations have produced a distinctive social and cultural character around the river's edge, which provided water for drinking, agriculture and transportation. Water played an important role in sustaining and developing the social and cultural structure of society in early civilisation. In other words, water was a significant element in making human beings live together, creating society, and encouraging it to produce socio-cultural activities through the necessity of water to maintain life. Burch & Cheek (1974:52) described the role of water's social meaning in the development of community:

The relation between water and community development can be seen as an aspect of the larger socio-logical processes: (1) changes in the degree of congruency among institutional sources of social honour in a community, (2) variations in the flexibility of social organisational forms to respond to eco-system signals, and (3) adaptability in the mechanisms for maintaining social solidarity (Burch & Cheek, 1994: 52).

Gandy (2004: 373) argued the additional dimension of water's role connecting tangible (physical) and intangible (non-physical) environments:

Water is not simply a material element in the production of cities but is also a critical dimension to the social production of space. Water implies a series of connectivity between the body and the city, between social and bio-physical systems, between the evolution of water networks and capital flows, between the visible and invisible dimensions to urban space (Gandy, 2004: 373).

Presenting an award – in The Year of Waterway Regeneration – to the Oracle Centre in Reading, British Waterways (2005) also emphasised that “waterways provide a powerful focus for people and communities in urban and rural areas. Waterways have enormous potential as a catalyst for bringing people together” (Figure 3.8).

**Figure 3.8:** Oracle Centre waterfront in Reading



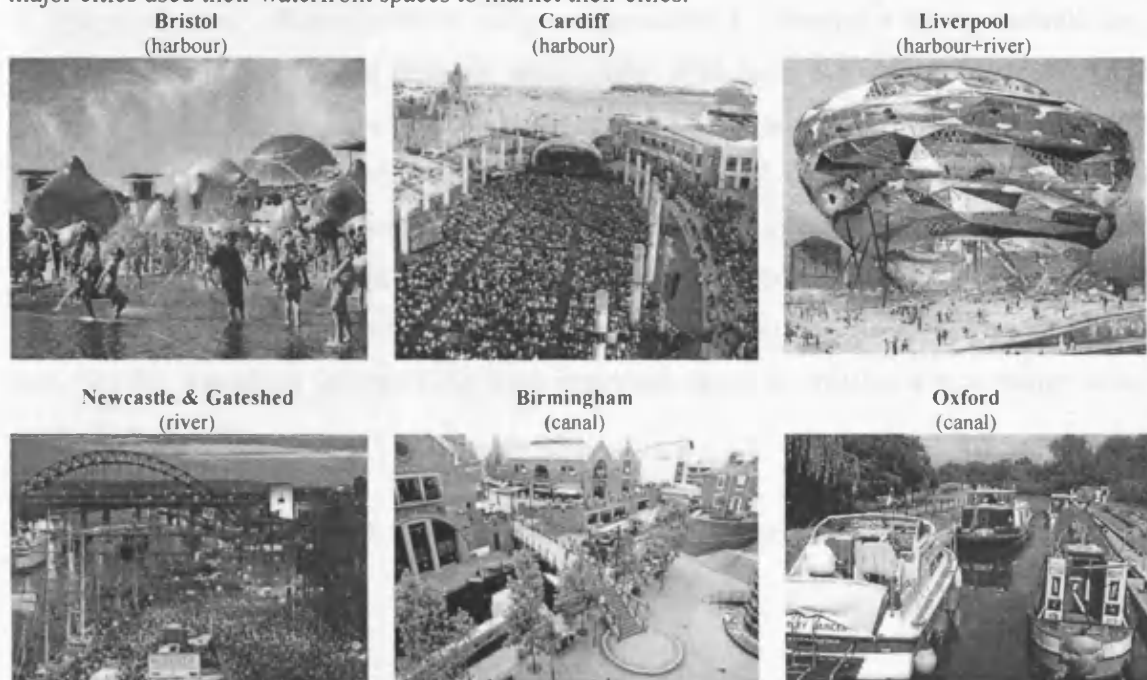
Source: British Waterways (Planning, 25 March, 2005, p1)

Even though the fundamental role of water has always been the same, its use patterns have changed through history: from subsistence to transportation to trade; to the means for industrial production. Above all, the unique environment generated by water, has become significant as a symbolic space which satisfies people's socio-cultural needs in the post-modern era.

### 3.2.6 Enhancing the image of the postmodern city

In addition, successful waterfront redevelopments recreate downtown as a neighbourhood transforming both the image of the city and improving the quality of urban space and socio-cultural life. "The water's edge was open to everyone, and the zone between the water and the city was often a symbolic place, an emblem of the city's beauty and richness" (Bruttomesso, 1993: 10). For example, the competition for 'European Capital of Culture 2008' in Britain clearly demonstrates how each city used its waterfront to transform and improve its image for city-marketing purposes (Figure 3.9). As cities shift from industrial to service economies, a major aspect of their success will rely on the quality of their urban space.

**Figure 3.9:** Six cities in Britain entered the competition for European Capital of Culture 2008. All six major cities used their waterfront spaces to market their cities.



Source: Johnston (2003, p16-18)

Marshall (2001a: 54) emphasised the potentials of waterfront space to enhance the image of the city:

In the first instance, waterfronts are often the most degraded place in a city, being the sites of the former industrial operation. Second, the waterfront is a highly visible location in most cities. Because of this, waterfront development is crucial to the development of a

city and also the quality of its urban expression. The waterfront is that place in a city where designers and planners can forge contemporary visions of the city and in doing so articulate values that contribute toward urban culture (Marshall, 2001a: 54).

### 3.2.7 Urban space design and the waterfront

In terms of designing urban spaces, the waterfront plays a great role in improving the quality of urban spaces and place making (The Urban Design Alliance, 2001). The Waterfront Centre (2002) particularly mentioned the value of waterfronts as a potential in significant urban place making:

Waterfronts, the unique places where land and water meet, are a finite resource embodying the special history and character of each community. Urban waterfronts, like the cities they help define, are dynamic places. The last three decades have witnessed profound changes along abandoned or underused waterfronts. The trend is accelerating in cities around the globe. It applies to canals, lakes and rivers as well as coasts (The Waterfront Centre, 2002:1).

Lynch (1959) argued in his book 'the image of the city' that the perception of the city by its users is recognised by the existence of five elements – paths, edges, nodes, districts and landmarks. In addition, he insisted that the design of the city must improve the city's legibility and imageability to create a good quality urban environment. He points out that the waterfront, as a physical entity, offers significant design opportunities for creating a highly readable city, contributing to its mental and physical imageability. Moreover, the waterfront creates vivid paths and visible edges where hard landscape meets the soft and liquid natural environment. In Cullen's (1961) 'townscape' approach to the design of urban spaces, the waterfront becomes an invaluable element that provides a consistent linear 'serial vision' along the waterfront when walking beside the watercourse. Moreover, the serial vision along the waterfront provides a range of colours, textures, sizes, styles, and building types. It can be said that the waterfront is one of the most important assets in creating a picturesque urban space (Figure 3.10).

**Figure 3.10:** Butler's Wharf with the picturesque view along the River Thames





One of the prominent functions of waterfronts is the significant role they play in creating a sense of place. What constitutes urban quality or sense of place has been of great concern to urban designers on both sides of the Atlantic in conjunction with creating positive urban public domains (Montgomery, 1998: 95) . An investigation of how a sense of place can be created, and what makes a sense of place in urban space has been examined by various scholars (Lynch, 1960; Relph, 1976; Canter, 1977; Alexander, 1979; Punter, 1991; Montgomery, 1998) (Figure 3.2). On the waterfront, the existence of water, which naturally draws people and provides natural and historical richness, gives great opportunities to create and enhance a sense of place through urban space design (Figure 3.11). In addition, because of the geographical location between water and land, waterfronts provide various design elements on both the landside and the waterside in the shape of ships, marinas, maritime museums, boats, maritime built environment etc.

**Figure 3.11:** Waterfront space gives great opportunities to create a sense of place (Baltimore)



As Figure 3.12 shows, three similar factors, which create the sense of place, are identified by Canter, Punter and Montgomery respectively. All three components can be enhanced by the existence of water, because, as demonstrated in section 3.2, the waterfront has great potential for socio-cultural gatherings, tourism, transportation, leisure/recreational uses and open spaces. To take an example from Punter's diagram in Figure 3.12, in terms of 'activities (or activity)', waterfronts can provide various types of water-related activities, such as cruising, boating, promenading, relaxing etc. The place where land meets water gives unique experiences compared to inland public space. In the case of 'meaning', a water feature plays a significant role in creating strong visual and psychological images in the user's mind. In addition, waterfronts have a great advantage in creating meaning because human beings are naturally drawn to water. Furthermore, the existence of water in towns and cities has occurred for a long period during their evolution. As a result, the existence of water is strongly related to local history and individual memories.

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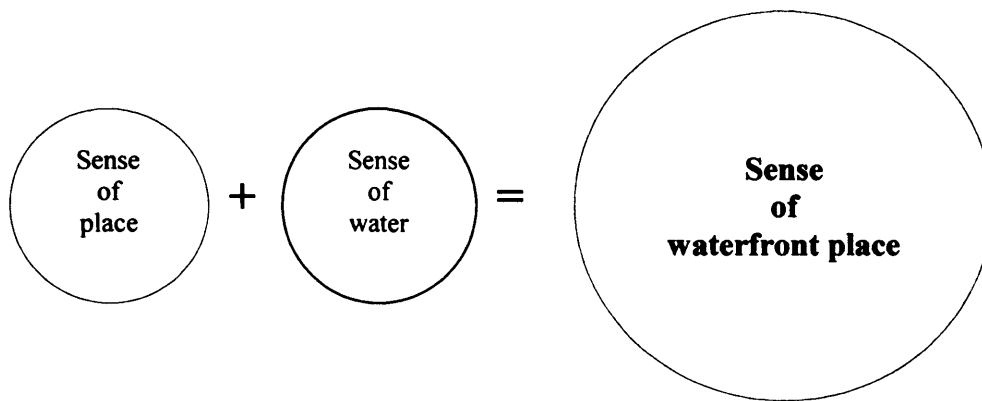
**Urban place making and its components**

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Finally, unlike inland areas, the ‘physical setting’ of waterfronts has great potential in creating unique townscapes, built form and landscape. Above all, the existence of water creates additional physical characteristics of the built environment, the so-called waterscape. Because of this, the physical setting often provides an improved sense of place in many ways. In addition, depending on the types of waterfront such as rivers, canals, harbours and lakes, various compositions of the physical setting are available and create a unique sense of place (Figure 3.18).

**Figure 3.13:** The notion of the sense of a waterfront place



In short, the reason why the waterfront has great potential to create a high quality sense of place is the existence of the water, which brings about an additional quality - ‘the sense of the water’ – as part of ‘the sense of the place’ (Figure 3.13). Thus, it is important to take into account these two important (related) concepts in the design process of urban waterfront space.

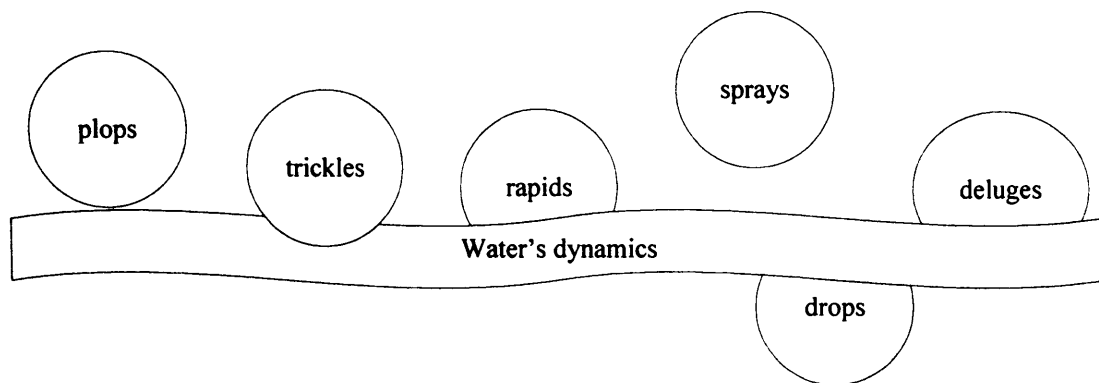
### **3.3 Categorising waterfronts and their formation**

“Water has always been an imperative for life. It is the genesis of settlement, controlling the birth, location and development of cities” (Moughtin, 1999: 172). The significant role of water in forming human settlements is evident throughout history. As a result, in terms of urban design, water in the forms of fountains, pools, docks, canals, rivers, and the sea have become important elements in designing cities. In other words, “water, as a structuring element, is central to the art of city building” (Moughtin, 1999: 172). In addition, the role of the waterfront in shaping the characteristics of city form from ancient times to the present is one of the most intriguing aspects of urban design studies. Therefore, it is useful to investigate the function of water as a structuring element for urban space.

### 3.3.1 Water in the built environment

According to Moughtin (1999), cities have four types of water features which generate lively city environments - water point, pool, river and coast. Each feature has a different function and expression in urban space (Figure 3.14). For instance, small wells and fountains in urban squares provide a gathering point as well as visual enjoyment. Pools like those in the Alhambra provide mental calmness in the space. Furthermore, the linear river has played a distinctive role in structuring the panoramic city landscape, both on the riverside and on a macro scale. Depending on the geographical location and the size of the water feature, it has numerous influences on human beings and their settlements.

**Figure 3.14:** Water's physical features when it moves

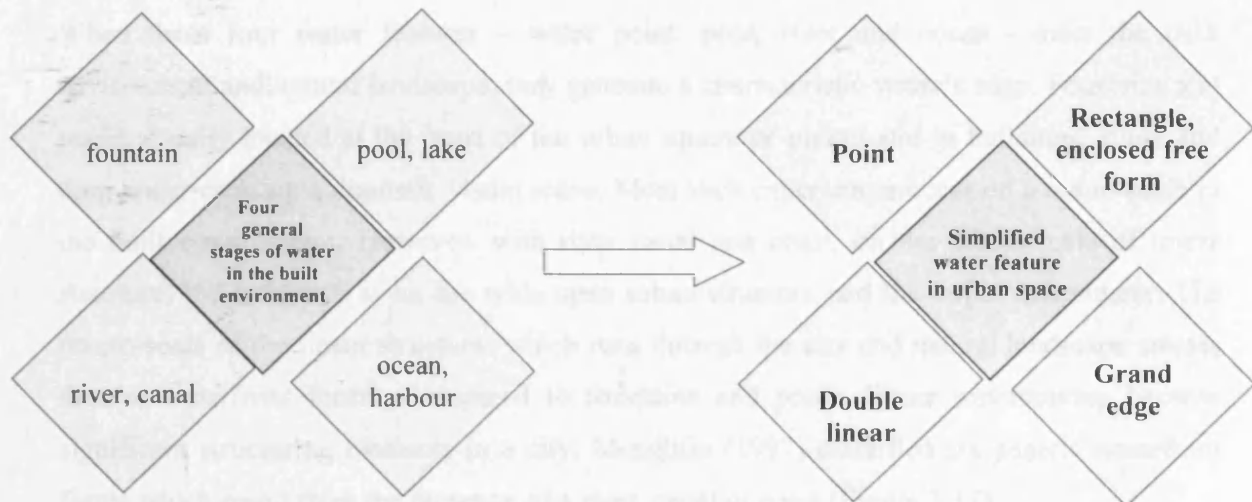


**Note:** Above diagram done by author based on 'Water and Architecture' (Moor, 1994).

The architect Charles Moore (1994) related these water features to the built environment. He also categorised four water features in the built environment. He stated that when the water meets the built environment, "the ways that architecture and water relate can be divided into four types: fountains, pools, rivers and oceans (Moore, 1994). He stressed the importance of water in creating qualitative spatiality through its diverse transformation. Betsky (1995) simplified these four types of water feature in a geometrical way. According to him, if water is nothing but flowing, the first act of transformation by man defines its character within the man-made world. Water can become one of four things: a point, a line, a pool or an edge in the built environment (Figure 3.15).





In short, it is generally accepted that water in the built environment and natural landscape can be characterised by four features: fountains, pools, rivers and oceans or the coast. These four water features can be simplified geometrical elements: point, pool, line and edge (Betsky, 1995).

**Figure 3.15: Water features in the built environment of a city**



**Note:** Graphical summary based on paragraph from 'Water and architecture' (Moore, 1994) and 'Take me to the water' (Betsky, 1995)

**Figure 3.16 Four types of water feature in a city**

Types	Function in a city	Example
1) Water point	<ul style="list-style-type: none"> <li>The life giving spring</li> <li>Everlasting well with mysterious legend</li> <li>Old fountains for drinking</li> <li>Heart of community activities and gathering place</li> </ul>	 Farnese fountain, Italy (Moore, 1995)
2) Pool	<ul style="list-style-type: none"> <li>A place of reflection</li> <li>Contemplation</li> <li>Recreation</li> <li>It is the centre of the English village with its green</li> </ul>	 The Alhambre, Spain (Moore, 1995)
3) Linear water course	<ul style="list-style-type: none"> <li>Run through cities and landscape</li> <li>As a destructive element</li> <li>As a productive element</li> <li>Water transportation</li> <li>Structuring urban form</li> </ul>	 Grand canal, Venice (Moore, 1995)
4) Coast	<ul style="list-style-type: none"> <li>It is the edge of the city</li> <li>Totally new landscape begins at the sea</li> </ul>	 Sydney Harbour in Australia (www.skycam.com.au, 2002)

**Note:** the contents in the 'types' and 'function in a city' column adopted from Moughtin (1997)

### 3.3.2 Formation of waterfronts and their character

When these four water features – water point, pool, river and ocean - meet the built environment and natural landscape, they generate a characteristic water's edge. Fountains and pools, usually located at the heart of the urban square or piazza and in buildings, spray and drop water creating a dramatic visual scene. Most such experiences occur on a micro-scale in the built environment. However, with river canal and coast, on the macro-scale of linear structure, the influence is on the wide open urban structure and the built environment. The macro-scale of the linear structure which runs through the city and natural landscape creates diverse waterfront forms. Compared to fountains and pools, linear watercourses become significant structuring elements in a city. Moughtin (1997) classified six generic waterfront forms which result from the presence of a river, canal or coast (Figure 3.17).

**Figure 3.17:** Moughtin's seven generic waterfront forms

Type	Character	Example
1. Vertical cliff edge	Buildings rising sheer from the water's edge.	▪ Nineteenth century canal lined by the sheer faces of multi-story warehouses.
2. Perforated water's edge	Access to sea is along narrow public passageways.	▪ Traditional fishing village, having fingers of narrow public pathways leading to the quay and seafront.
3. Bank and beach	Water meets a soft, natural bank or gentle slope rather than a hard formal constructed edge	▪ The condition of the waterfront we usually associate with a river and coastline
4. Dockside quay	The hard formal constructed edge	▪ Common water's edge treatment for a port settlement in a sheltered location
5. Bay or open square	Envelops and encloses the water	▪ Surrounded and enclosed space
6. Pier	Jutting out into the water at right angles to the shoreline or river	▪ Pier such as the one in Blackpool

**Note:** Summarised table from 'Street and Square' (Moughtin, 1999, p177-182)

Figure 3.18: The formation patterns of waterfronts and their spatial characteristics

Type	Formation of waterfront (dotted line)	Geometric form	Influence on built environment	Key characteristics	Example
(1) Fountain & well		Point	Very micro-scale 	<ul style="list-style-type: none"> <li>They occur in squares, streets and building</li> <li>give visual and audible pleasure</li> <li>but limited influence and access</li> </ul>	 Barcaccia fountain Source: (Moore, 1994)
(2) Pool Dock		Rectangle or deformed square	Very micro-scale 	<ul style="list-style-type: none"> <li>usually, it has a similar character to fountains &amp; wells</li> <li>it provides more flexible access and influence depending on the shape</li> </ul>	 Court of the Myrtles the Alhambra, in Granada Source: Moore (1994)
(3) Coast & Ocean		single linear	Very macro-scale but limited interaction 	<ul style="list-style-type: none"> <li>has a macro-scale influence on a city in the form of harbour and beach</li> <li>Geographically, limited access between sea and seafront</li> </ul>	 Venice beach in Los Angeles Source: Moore (1994)
(4) River & Canal		double linear structure	Very macro-scale and dynamic interaction 	<ul style="list-style-type: none"> <li>Continuous double linear structure influences both sides of the riverfront and built environment on a macro-scale</li> <li>It usually has a significant influence on sustainable urban spatial structure</li> </ul>	 Bristol waterfront Source: Author (1997)
(5) Coast		One direction & singular linear waterfront	Very macro-scale and one directional interaction 	<ul style="list-style-type: none"> <li>Typical form of seaside city</li> <li>One directional activity often on grand scale</li> </ul>	 Darling Harbour in Australia Source: Author (14:00 24 May 2004)
(6) Coast + Bay		multi and irregular side of bay + singular coastline	Very macro-scale and multi-directional interaction 	<ul style="list-style-type: none"> <li>Typical form of port cities in Europe and North America</li> <li>It causes complicated geographical form and interaction.</li> </ul>	 Boston Harbour and Charles River Source: Young (1993, p265)
(7) Coast + River + Bay		double line of river + multi and irregular side of bay + singular coastline	Very macro-scale and multi-directional interaction 	<ul style="list-style-type: none"> <li>Typical form of port cities in Europe and North America</li> <li>It causes complicated geographical form and interaction.</li> <li>E.g. Boston</li> </ul>	 Boston Harbour and Charles River Source: Krieger (2001, p13)

Source: Author (2001)

### **3.4 The unique spatial structure of waterfront space**

In his book 'Urban Space', Krier (1984) tried to define the concept of urban space, through an understanding of its physical structure. To do this, he analysed the typological and morphological aspects of the physical layout of urban space and the spatial integration of each physical layout without imposing an aesthetic criteria. In a similar way, to understand the spatial structure of waterfront space, one must have an appreciation of the physical layout of waterfront space, even though there are also invisible elements of public space such as the social and cultural environment.

For instance, Krier found 'street and square' to be the basic elements that create the physical urban space through their combination. However, a question raised here is what the physical structure of the waterfront space looks like. Does it have a similar pattern of integration to the street and square in urban space, as Krier has suggested? Or is there any characteristically different physical function between inland urban space and waterfront space? If there are, what differences do they have? To answer these questions, it is first necessary to examine the notion of waterfront space, and its physical characteristics.

#### **3.4.1 The notion and characteristics of the waterfronts**

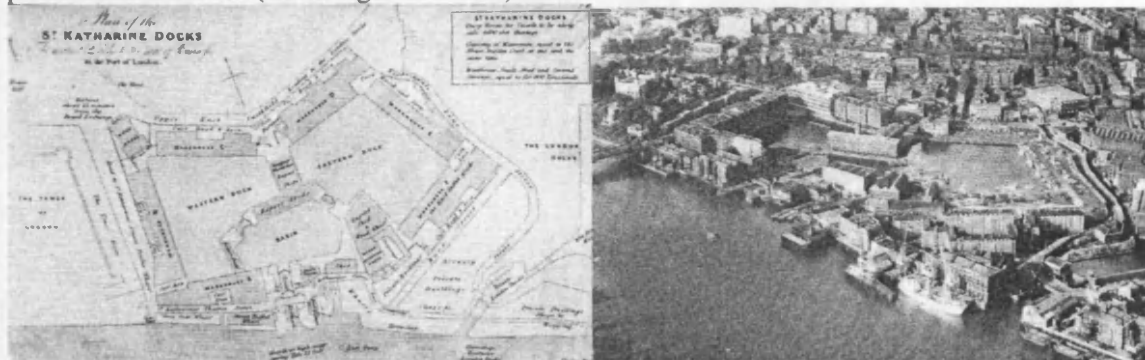
Urban waterfronts are by definition the interface between land and water (The Urban Land Institute, 1983). Semantically 'waterfront' means that part of a town which fronts water (Vallega, 1993). In addition, "a waterfront is, by definition, a stretch of land or section of a city fronting onto a body of water" (Pun, 1993: 202). Thus, the extent of the interface between water and land can define the scope of the waterfront, although it is difficult to identify a clear boundary. Based on the level of interfaces between water and land, the waterfront environment can be divided into five realms:

1. water surface realm
2. water's edge realm
3. foreground waterfront realm
4. background waterfront realm
5. inland realm

This waterfront environment is based on 'physical distance' and 'visual and physical accessibility', because the notion of the waterfront relates to its proximity to water. Due to the level of the physical, visual and psychological proximity to the water, each realm has unique spatial and functional characteristics (Figure 3.20). The existence and formation of the five realms vary depending on the waterfront types – canals, docks, rivers and harbours - and their

historical context. In terms of their historical evolution, trade and industrial functions dominated most of the waterfronts in Europe and America until the 1950s. Because of this, it is common that warehouses and industrial structures and buildings, such as shipyards, have occupied the waterfront spaces. To protect goods for trade, waterfronts were surrounded by defence walls, which are often seen on European waterfronts such as in London (Figure 3.19). In addition, industrial structures such as port facilities and manufacturing are also typical of waterfronts and are found in cities in both Europe and North America, e.g. Rotterdam, Manchester, Genoa, Baltimore, New York and Boston. Furthermore, trade and industrial uses spread widely along all different types of waterfronts such as canals, docks, rivers and harbours.

**Figure 3.19:** St. Catherine Docks plan and aerial view in the 1970s: old warehouse buildings function both to store trade goods and to protect the goods from theft at the water edge. Some demolition took place at Eastern Dock (on the right hand side)




Source: Pudney (1975, p73)

The five realms of waterfronts are rarely found in areas that remain in trade and industrial functions. Instead, the five realms are often created in the course of accommodating post-modern uses of the waterfront and through the redevelopment process in order to meet the socio-cultural demands of the waterfront. Various of the five realms can be identified in canals, docks, rivers and harbours during the redevelopment process. Some waterfronts do not have foreground waterfront realms. Others have no water's edge realm (Figure 3.21). Also, depending on the scale of the waterfront, the experience of the five realms is different. Although the five realms are found in canals and rivers, they will not likely offer a different experience from the five realms of waterfront space in the case of harbour and the sea. However, many successful waterfront redevelopments - such as Baltimore Inner Harbour, Darling Harbour, Bristol Harbour and Yokohama Minato Mirai 21 - clearly show spatial and functional divisions of the waterfront spaces, especially characterised by openness, and permeability from the existing cities to the water which cross over the five realms of waterfront space.

**Figure 3.20: The five realms of waterfront space**

Realm		Characteristics
1. Water surface realm		➤ Water surface itself
2. Water's edge realm	Front	➤ The boundary where water and land meet.
	Back	
3. Foreground waterfront realm	Front	➤ the place where people visually and mentally feel a sense of waterscape ➤ the place where people feel physical closeness to waterfront
	Back	➤ includes a major access road which is parallel to the water's edge
4. Background waterfront realm	Front	➤ the place where the edge of the urban structure meets the foreground waterfront ➤ visually and physically still accessible to the waterfront but less than that of the foreground waterfront realm
	Back	➤ less accessible and visually interrupted
5. Inland		➤ unlikely to have a sense of waterfront ➤ visual and physical accessibility are very limited



Inland realm	Background waterfront realm	Foreground Waterfront realm	Water's edge realm	Water Surface realm
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Source: Author (2002). Note: Picture in this table from Meyer (1999, p114)



As Figure 3.22 illustrates, the design of the spatial structure of the five realms of the waterfront space play a direct role in creating a successful waterfront and creating the quality of urban waterfront space. In short, it is important to take into account the spatial character of the waterfront spaces –the five realms of the waterfront - in relation to creating a sense of the waterfront for post-modern uses and certain types of development. Thus, the notion of the five realms of a waterfront becomes an important step to understanding the physical character of waterfront space and designing successful waterfront space.

**Figure 3.21:** An example of waterfront space which has no water's edge, foreground and background waterfront realms (Bristol)






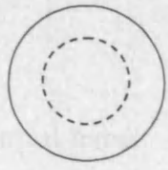
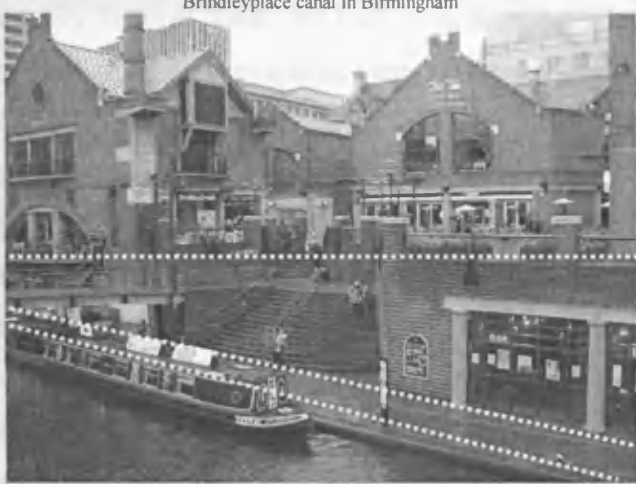
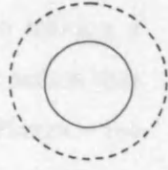

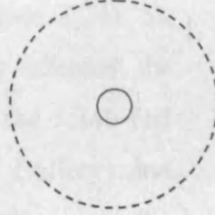
### 3.4.2 Typology of waterfront space

According to Krier (1984), the basic forms which constitute urban space are street and square. He illustrated the various types of street and space and the geometrical combination of these two elements:

The two basic elements are the street and the square. In the category of 'interior space' we would be talking about the corridor and the room. The geometrical characteristics of both spatial forms are the same. They are differentiated only by the dimensions of the walls which bound them and by the patterns of function and circulation which characterise them (Krier, 1984: 17)

In terms of the physical layout of urban space, it is generally accepted that the urban built environment is an extension of the combination of the street and square. However, when the extension of urban space meets water such as a river or a coast at the edge of urban land, it creates the characteristic boundary, the so-called waterfront or water's edge, as a different form of urban space – 'urban waterfront space'. How can we describe this different form of urban space? What are the characteristics of the physical entity perceived along the boundary?

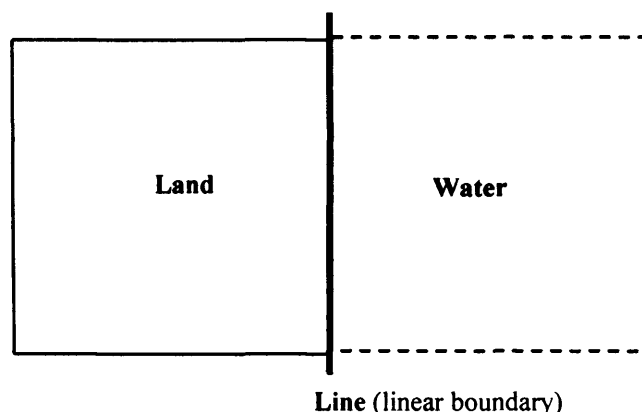
**Figure 3.22:** The five realms of waterfront space in four different waterfront types and their spatial characteristics

Types	Examples	Character	The sense of five realms (continued line circle) and levels of intimacy (dotted circle)
Harbour	Baltimore Inner Harbour waterfront 	<ul style="list-style-type: none"> <li>• Normally grand scale</li> <li>• Indirect contact with water</li> <li>• Water surface is dominant as a structuring element</li> </ul>	
River	Melbourne waterfront along the Yarra River 	<ul style="list-style-type: none"> <li>• Very human scale</li> <li>• indirect contact with water</li> <li>• normally located in cities</li> <li>• Because of double linear structure (see Figure 3.18), it has two five realms of waterfront along both sides of the river</li> <li>• Water surface realm is dominant as a structuring element</li> </ul>	
Canal & Dock	Brindleyplace canal in Birmingham 	<ul style="list-style-type: none"> <li>• Very human scale</li> <li>• Direct and indirect contact with water is possible</li> <li>• Narrow canalside provides a comfortable environment</li> </ul>	
Fountain & Pool	Fountain place, Dallas, Texas 	<ul style="list-style-type: none"> <li>• Very human scale</li> <li>• Direct contact with water is possible</li> <li>• Very limited impact on surrounding built environment</li> </ul>	

Note: Pictures in the table from top to bottom: Author (2004), Breen & Rigby (1996, p68), Author (2003) and Moore (1994, p68).

When urban land meets water, it creates a characteristic formation of physical layout. Because of the liquid boundary which entirely confines the extension of urban space, the waterfront makes the urban space suddenly disconnect from the existing urban fabric (Figure 3.23). As a result, the built environment of the waterfront shows a different geometrical form of space.

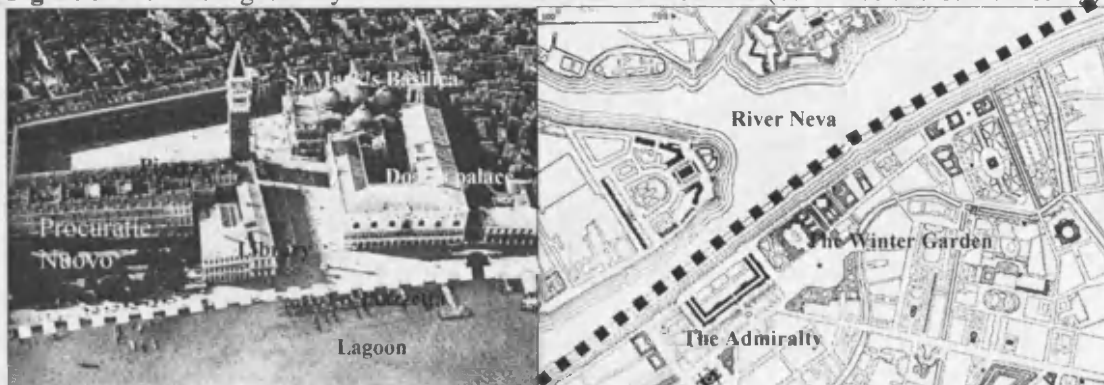
**Figure 3.23:** ‘Line’ emerging as an important geometrical element between water and land



Krier explained the complexity of tangible urban forms through three basic geometrical forms – square, triangle and circle. However, at the place where land and water meet, it is necessary to consider another important and simple geometrical form which is already expressed as the boundary between water and land. It is the ‘line’ which functions as ‘shear cutting’ between land and water. For example, “one of urban history’s most memorable spatial ensembles” (Morris, 1997: 189), San Marco, consists of two continuous squares. San Marco Piazza in front of the Basilica and the Piazzetta at the edge of the water, meet the lagoon making a distinctive linear boundary that became the picturesque waterfront promenade. It seems that the waterfront limited the extension of the built environment around San Marco Piazza – the Doge’s Palace, Library, and Procuratie Nuovo. Along the boundary, the San Marco Piazza created a unique historical waterfront environment that is in harmony with water, square, and historical buildings at the edge of the lagoon. In addition, the spatial organisation of each building around San Marco becomes unique because of the linear boundary where water and square meet. Consequently, the waterfronts’ linear boundary played a significant part not only as an enforcing factor which organises the built environment but also creating the place where the linear waterfront and water become a part of the built environment (Figure 3.24). St. Petersburg is another example of how along the River Neva waterfronts affected the renaissance design principles of the built environment. A series of buildings – the 1,340 feet long Admiralty, the Winter Palace (now the Hermitage Museum and Art Gallery) and Summer Garden – are lined up along the river Neva (Bacon, 1972). In this case, the riverfront’s linear boundary played an important role as a baseline axis for the Admiralty. In

addition, the boundary gave a foundation to the spatial structure of St. Petersburg and the extension of the city (Figure 3.24).

**Figure 3.24 :** Linear geometry between water and built environment (St. Marco and St. Petersburg)



Source: Morris (1997, p189) and Bacon (1976, p199)

To sum up, when Krier's three major geometrical elements – square, triangle and circle - which comprise various urban forms, meet the linear boundary, the so-called water's edge, the linear boundary confines urban form to land, which is the result of the combination of the three geometrical elements. Thus, it can be said that a typology of waterfront space, its spatial structure and their derivative consists of four main geometric elements – line, square, triangle and circle (Figure 3.25). Because of the confining function of the linear boundary, the layout of the waterfront built environment and spatial structure is distinguished by sheared interruption of the linear boundary. Although the linear boundary functions as a confining component, the waterfront built environment and urban waterfront form are tremendously influenced by this (see Figure 3.30 for details). Thus, it is necessary to consider 'line' as a part of the four main geometrical elements.

**Figure 3.25:** Four basic geometrical elements that shape waterfront's built environment



### 3.4.3 The physical patterns of the linear water's edge

In the previous argument, the linear water's edge was identified as a significant factor in shaping the built environment of the waterfront with three geometrical shapes. Inland urban physical structure, as Krier argued, is a combination of the circle, triangle and square. On the

waterfront, however, three key geometric shapes – circle, triangle and square – are strongly constrained by the linear edge where land meets water. As a result, the water's edge has diverse physical characteristics as a boundary maker between water and land. Thus, it is important to understand the physical structure of the water's edge.

Due to the three-dimensional existence of the built environment of the waterfront, the physical and geographical features of the water's edge can be examined through an in-depth investigation of the two-dimensional (plan), three-dimensional (section) and their interrelationship. Although Krier (1984) also examined the form of the three-dimensional perspective of the urban built environment – section and elevation - using three geographical forms, the shear cutting function of the water's edge creates a unique waterfront built environment compared to inland urban space. Thus, an investigation of the 'plan' and 'section' will provide not only a foundation to understand the formation of the waterfront's built environment but also a basic understanding of the built environment of the water's edge where the boundary creates an interface between the water and the built environment. In addition, an understanding of the interrelationship of two and three-dimensional characteristics of the water's edge will give additional valuable data to identify the interfaces. It will lead to the basic understanding of the physical structure of the waterfront space

#### **3.4.3.1 Two-dimensional characteristics of the water's edge**

Two-dimensional characteristics of the water's edge can be understood by investigating two aspects. One is the types of geometrical patterns that occur when land meets water. The other is the interrelationship between the water's edge and the built environment of the waterfront. Figure 3.26 illustrates the geometrical patterns when land meets water. There are six typical geometrical contact patterns – 1)'straight', 2)'concave', 3)'convex', 4)'extension', 5)'enclose' and 6)'island'. Figure 3.27 also demonstrates how the water's edge is involved in the formation of the degree of closeness – 1)'one sides', 2)'two sides', 3)'three sides', 4)'four sides' and 5)'surrounded'.

The above two aspects, how land meets water and shapes the water's edge, are important elements for designing waterfront space because different geometrical patterns provide the waterfront with different physical qualities. These are strongly related to the quality of the waterfront space.

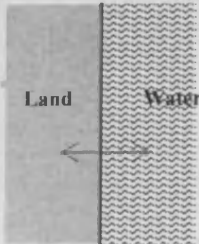
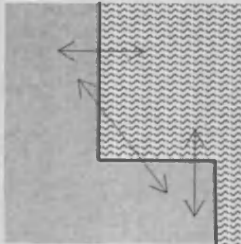
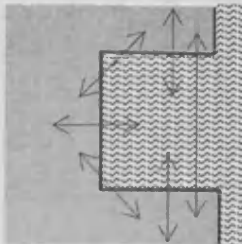
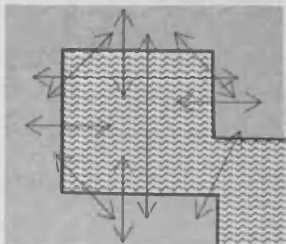
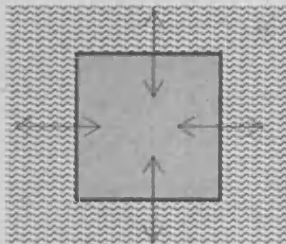
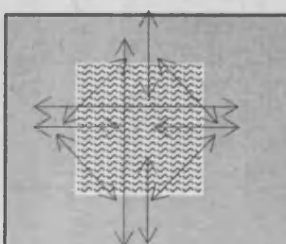



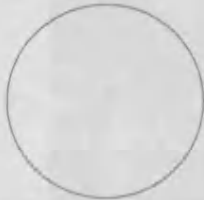







Figure 3.26: Typical contact patterns of water's edge

	straight	natural/sinuuous	concave	convex	extension	enclose	island
Plan							
Characteristics	<ul style="list-style-type: none"> <li>▪ Linear interaction between water and users</li> <li>▪ River waterfront</li> <li>▪ Often engineered</li> </ul>	<ul style="list-style-type: none"> <li>▪ Linear but dynamic frontage</li> <li>▪ Natural waterfront environment</li> </ul>	<ul style="list-style-type: none"> <li>▪ Typical patterns of docks, canals and Harbour</li> <li>▪ Often Inward waterfront into cities</li> </ul>	<ul style="list-style-type: none"> <li>▪ Improved interactive water's edge</li> <li>▪ Extended water's edge to create more frontage</li> <li>▪ Often engineered</li> </ul>	<ul style="list-style-type: none"> <li>▪ Multi-dimensional interaction between water and users</li> <li>▪ Often engineered or natural</li> <li>▪ Shipbuilding waterfront</li> <li>▪ Naval shipyard</li> <li>▪ Terminals</li> </ul>	<ul style="list-style-type: none"> <li>▪ Often engineered to protect waterfront from weather and wave</li> <li>▪ Shipbuilding waterfront</li> </ul>	<ul style="list-style-type: none"> <li>▪ Natural pattern and great potential for use patterns</li> <li>▪ Great potential for enjoyment of water</li> <li>▪ Island or artificial land</li> </ul>
Interaction level between water & land							
Example	<p>Osaka Bay (Suntory Museum)</p> <p>Source: Author (1997)</p>	<p>Xochimilco ecological park in Mexico city</p> <p>Source: Breen &amp; Rigby (1996, p.98)</p>	<p>Bristol Harbourside in England</p> <p>Source: Author (24th May 2004)</p>	<p>Canada Place in Vancouver</p> <p>Source: (Marshall, 2002, p23)</p>	<p>Columbus Park in Boston</p> <p>Source: Krieger (2001, p146)</p>	<p>Port Vell in Barcelona</p> <p>Source: Meyer, (1999, p163)</p>	<p>Shinko district in Yokohama</p> <p>Source: Yokohama Minato Mirai 21 (2002, p.70)</p>

Source: Author (2002)



Figure 3.27: Closeness of waterfront spaces

	One Side	Two Sides	Three Sides	Four Sides	Surrounded	
					water-surrounded	land-surrounded
Closeness						
Characters	<ul style="list-style-type: none"> <li>One way visual interaction</li> <li>Linear water's edge provides less dynamic experience of waterscape during movement</li> </ul>	<ul style="list-style-type: none"> <li>Multi-directional visual interaction</li> <li>Limited experience of waterscape</li> </ul>	<ul style="list-style-type: none"> <li>Multi-directional visual interaction</li> <li>Panoramic waterscape</li> </ul>	<ul style="list-style-type: none"> <li>Very multi-directional visual interaction</li> <li>The most interactive visual interaction</li> <li>Provides dynamic experience of waterscape during movement</li> </ul>	<ul style="list-style-type: none"> <li>Typical type of island</li> <li>Surrounded by water but limited interaction, like one sided waterfront</li> </ul>	<ul style="list-style-type: none"> <li>Multi-directional visual contact</li> <li>Typical type of lakes</li> <li>Water surrounded by land but more interactive visual contact than an island</li> </ul>
Interaction level						
Example	 Source: Author (18 April 2003)	 Source: Breen & Rigby (1999, p.116)	 Source: Author (14:09, 24 May 2004)	 Source: Meyer (1999, p263)	 Source: <a href="http://www.grimaud-provence.com/english/">www.grimaud-provence.com/english/</a>	

Source: Author (2002)

For example, Figure 3.28 shows how two very different geometrical patterns of water's edge – Darling Harbour in Australia and Cosmo Waterfront Square in Osaka – create the waterfront built environment. Darling Harbour has a 'concave' geometrical shape and 'three sides' of water's edge compared to Cosmo Waterfront Square which has a 'straight' shape and 'one side' of water's edge (Figure 3.26 & 3.27).

**Figure 3.28:** Two different geometrical patterns of water's edge and the built environment of the waterfront



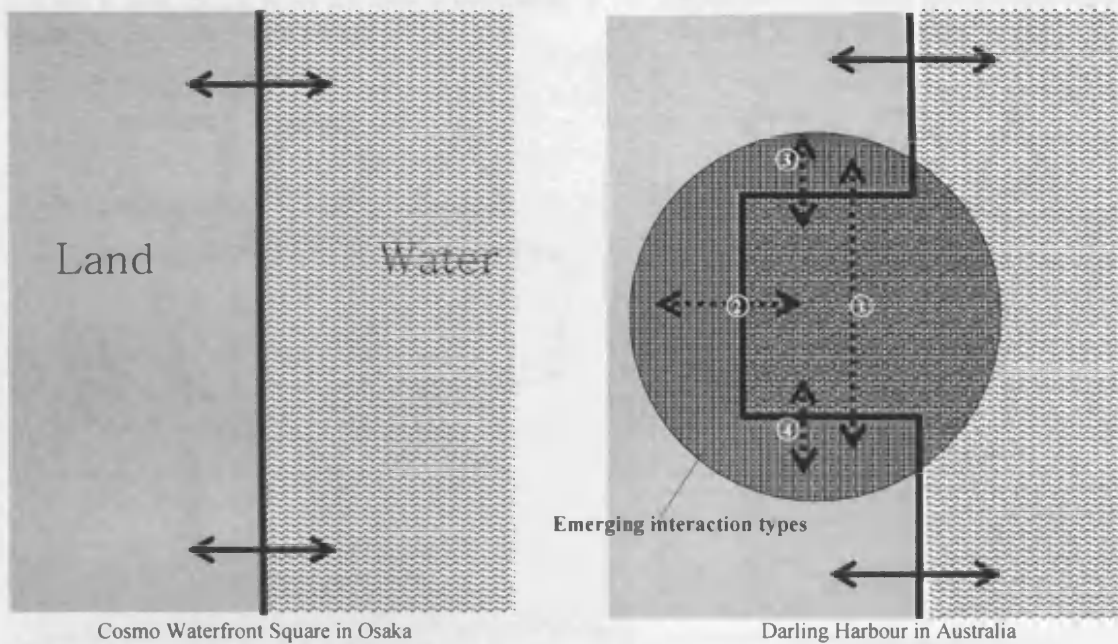
Source: Breen & Rigby (1996, p43 and p44)

Due to the geometrical difference of the water's edge, the formation of the waterfront's built environment and the interrelationship of people, water and the built environment results in different use patterns and quality of the waterfront. In addition, the geometrical difference significantly influences the interactivity patterns between people and the water, which are important elements for successful waterfront development.

Figure 3.29 illustrates the possible interaction patterns between the land and the water depending on the geometrical shape of the water's edge. The existence of a bridge over Darling Harbour can be inferred from the activity patterns (Figure 3.28), the dotted arrow ① in the shaded circle in Figure 3.29. Because of the 'concave' and 'three sided' shape of Darling Harbour, the physical development, especially visual interaction, turns out to be a more diverse pattern than a 'straight' or 'one side' water's edge. Thus, the geometrical patterns affect the design of the waterfront space and become important design resources for creating high quality waterfront space.



**Figure 3.29:** Interaction patterns depending on the geometrical shape of the water's edge



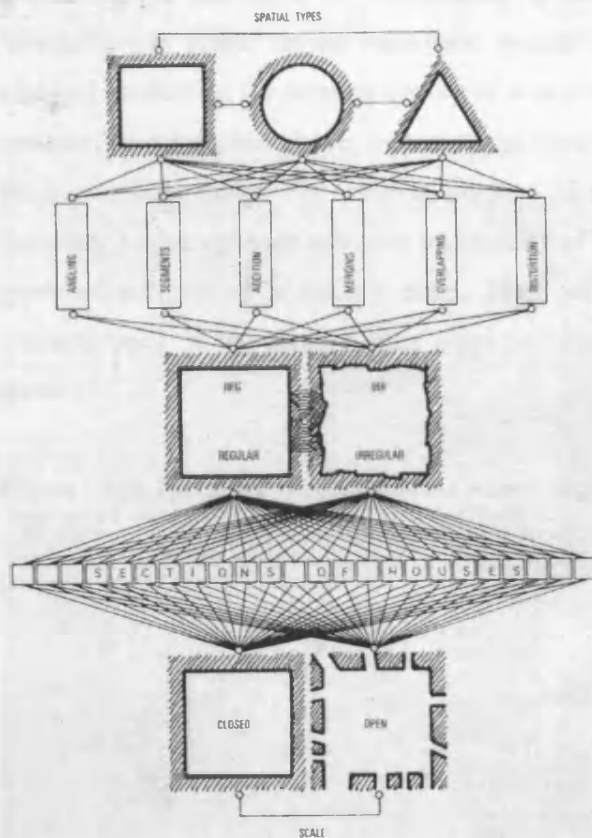
### **Relationship between the water's edge and the waterfront's built environment**

The two-dimensional physical form of the water's edge also influences the formation of the built environment. The waterfront's built environment is characterised by the water's edge as a constraint that limits the extension of the built environment. Krier (1984) argued that three basic 'spatial types'— circle, square and triangle – and their combination create a two-dimensional morphological form of urban space (Figure 3.30).

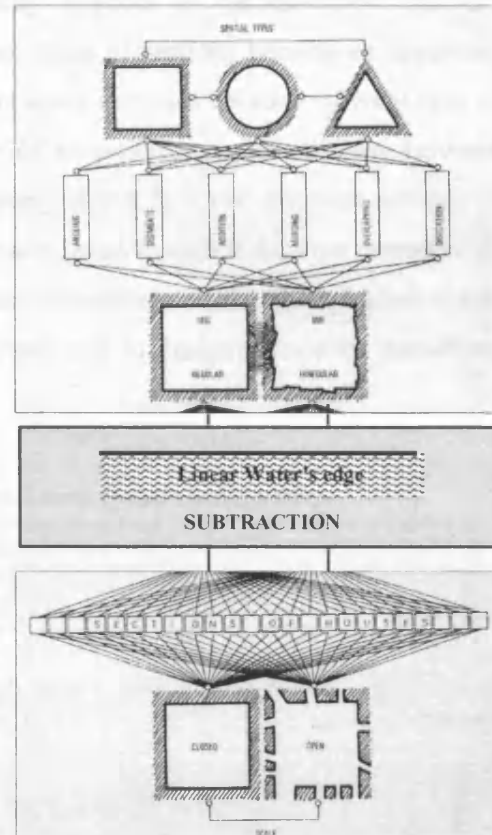
However, the waterfront built environment has a different process in shaping physical layout compared to Krier's argument because, as Figure 3.30 demonstrates, the linear water's edge becomes a 'subtracting element' of the waterfront's built environment which is composed of a combination of the 'three geometrical elements'. Due to this 'shear cutting function' of the linear water's edge, the waterfront built environment has a unique morphological form compared to the inland built environment. For example, the Fabbriche Nuove building in Figure 3.31 illustrates how the water's edge confines the construction of the building and subtracts the morphology of the built environment along the waterfront. As a result, the whole built environment faces the water surface realm without visual blocking.

**Figure 3.30: 'Subtraction' function of the linear water's edge**

1) Krier's three spatial types and their combination created by the linear water's edge



2) Author's additional geometrical element created by the linear water's edge



Source: Krier (1984). Note: Based on Krier's diagram modified by author (right)

**Figure 3.31: Waterfront built environment by shear cutting process of the water's edge (Fabbriche Nuove in Venice)**

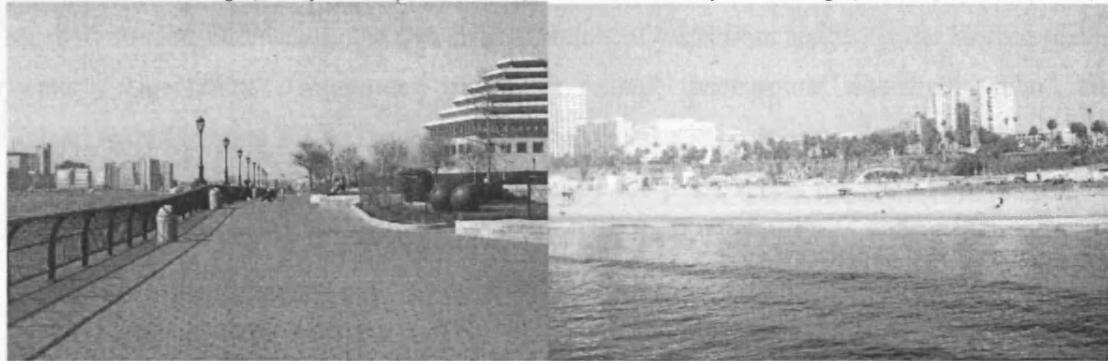


Source: Kaminski (2000, p 48)

### 3.4.3.2 Three-dimensional characteristics of the water's edge

The shear cutting function of the linear water's edge creates three-dimensional characteristics. Depending on the form of the section, it directly impacts on 'accessibility' and the 'availability of space' on the waterfront. In addition, types of sections become an important physical foundation for creating quality of waterfront space and uses because different type of sections, as mentioned above, influence the quality of accessibility and availability between the land and the water. For instance, Figure 3.32 clearly shows how two different sections of the water's edge generate activities and quality of spaces, even though it does not represent all types of sections of a water's edge. Thus, an understanding of the three-dimensional characteristics of the water's edge plays an important role in designing quality waterfront space.

**Figure 3.32:** Two different sections of the water's edge and their spatial characteristics  
Shear vertical water's edge (Battery Park City in New York)      Gradual slope water's edge (Venice Beach in California)



Six geometrical forms of section – 1)'perpendicular', 2)'levelled bank', 3)'diagonal', 4)'stepped', 5)'slope' and 6)'jutting over water' – are identified. As Figure 3.33 illustrates, the geometrical form of the sections influence the availability and amenity of the water's edge for various activity and use patterns. At the same time, the success of waterfront developments is strongly related to how the section of the water's edge provides available quality space and accessibility between the water and the land along the waterfront.

## 3.5 Conclusions

So far, the potential of waterfronts and their physical characteristics have been examined. The urban waterfront provides great opportunities as a transportation corridor, historic tourist site, and for leisure/recreational uses. The redevelopment of abandoned waterfronts also provides an opportunity to revitalise the urban area, generating social and economical benefits. In addition to such benefits, these redevelopments play an important role in enhancing the image

of the city in a competitive and globalised world. In particular, due to the natural landscape along the waterfront, historic heritage, and human preference for water, waterfronts have become a great potential space for the cultural public domain to accommodate the demands of the postmodern era.

In the built environment, from an individual building to the city scale, water exists in four geometrical forms in the built environment – point, rectangle, double linear and grand edge (Figure 3.15). It is an important design and structuring element in a city. The formation of the six waterfront types (Figure 3.18) and their characteristics demonstrate that the size of the waterfront and the formation of the water's edge play an important role in use patterns of waterfront spaces, and land and water interactions.

The investigation of the spatial structure of waterfront space discovers that the quality of waterfronts are strongly associated with the sense of the waterfront. With respect to that, the most significant findings are the five critical realms of waterfront space- 'water surface realm', 'water's edge realm', 'foreground waterfront realm', 'background waterfront realm', and 'inland realm' (Figure 3.20). The functional and spatial composition of each of the five realms is a key factor to be considered in designing waterfront space for success. The way of arranging the buildings, streets and open spaces in these five realms is crucial to creating a high sense of the waterfront and certain waterfront redevelopment types.

The typology of the waterfront space in two-dimensional and three-dimensional contexts was examined. In addition, four geometrical elements - triangle, square, circle and line - were revealed through the investigation. The typology of water's edge, the number of sides which meet the water, and the section of the water's edge show how these influence the sense of the waterfront, physical and visual accessibility, use patterns and interfaces between the water and the built environment.

As discussed at the beginning of section 3.1, to accommodate effectively a certain type of use, there might be certain patterns of physical structure and form which maximises such uses. Thus, an understanding of the physical characteristics of the waterfront is an essential part of designing waterfront space. This chapter has mainly examined the basic physical characteristics of waterfront space. The next chapter looks at how the waterfront redevelopment phenomena around the world has shaped waterfront space depending on redevelopment patterns, periods and locations.

Figure 3.33: The section of the water's edge and spatial characteristics

	Perpendicular	Levelled bank	Diagonal	Stepped	Slope (beach)	Jutting over water (pier)
Section						
Availability of the edge						
	Less possible and very limited	Impossible	A little possible but limited	very possible but fragmented	Very possible and extra extension	extremely possible and continuous through the pier
Description	<ul style="list-style-type: none"> <li>▪ river, canal and harbour</li> <li>▪ psychologically open to water</li> <li>▪ visually accessible</li> <li>▪ physically limited</li> </ul>	<ul style="list-style-type: none"> <li>▪ river, especially for flood protection. Protection against wave in harbour</li> <li>▪ Psychologically very limited to the water</li> <li>▪ Creates visually barrier between water and land</li> <li>▪ Physically limited</li> </ul>	<ul style="list-style-type: none"> <li>▪ river, canal and Harbour</li> <li>▪ psychologically open</li> <li>▪ visually accessible</li> <li>▪ physically accessible</li> </ul>	<ul style="list-style-type: none"> <li>▪ river, canal and harbour</li> <li>▪ provides sociable space along the waterfront</li> <li>▪ psychologically very open to water</li> <li>▪ visually very accessible</li> <li>▪ physically very accessible</li> </ul>	<ul style="list-style-type: none"> <li>▪ beaches</li> <li>▪ psychologically very open and gives sense of freedom</li> <li>▪ visually the most accessible</li> <li>▪ physically ultimately accessible</li> <li>▪ great potential for water-related activities with sensual experience</li> </ul>	<ul style="list-style-type: none"> <li>▪ two types of pier: <b>grounded</b> and <b>pier over the water</b></li> <li>▪ overcome the boundary between water and land</li> <li>▪ dramatic experience over the waterfront</li> <li>▪ pier becomes activity node over the water surface</li> </ul>
Interaction level between water & land						
Examples	 Source: Author (April, 2002)	 Source: Author (December, 1997)	 Source: Author (August, 2002)	 Source: Author (June, 2004)	 Source: Author (November, 1998)	 Source: Hawkes (2003, p3)

Source: Author (2002)

# **Chapter 4:**

## **Investigating waterfronts: the past, present and future**

This chapter gives an overview of the waterfront redevelopment phenomena around the world. The four objectives of the literature review are: firstly, to look at the holistic characteristics of waterfront redevelopments on different continents and the different patterns of redevelopment; secondly, to examine successful design elements, process and key components; thirdly, to find a potential case study area; fourthly, to provide baseline data for the analytical framework for the case study. In section 4.1, the baseline data is reported in terms of urban design, architecture and the planning context. Section 4.2 maps out past and present waterfront redevelopment phenomena. One concerns the successful redevelopment process; the other the successful design elements. Section 4.3 highlights key components that constitute characteristics of waterfronts.

## **4.1 Urban waterfront redevelopment phenomena**

In this section, an examination of the practice and redevelopment patterns of waterfronts is conducted to provide an in-depth understanding of the waterfront redevelopment phenomenon in the light of the planning, architecture and urban design of the waterfront, according to historic periods and geographic areas. To achieve this, it is necessary to investigate how waterfront space is shaped by development patterns, geographical location and cultural background. In addition, this holistic examination of waterfront space provides an essential foundation for the elaboration of the successful elements which can be related to the empirical data.

Because of the number of waterfront developments around the world, it is impossible to include all examples. In addition, various scales of redevelopment have taken place along the different types of waterfront, such as canals, rivers, lakes and harbours (Figure 4.1). This in-depth examination of waterfronts is, therefore, limited in terms of the number of cases reviewed. In spite of this limitation, the examination includes examples from North America, Europe, Asia and Australia to exemplify the generic phenomenon of waterfront redevelopments and their successful or unsuccessful stories.

The criteria for selecting cases are based on three perspectives. Firstly, cases which have different development periods are selected to show a wide range of redevelopment approaches and their outcomes, from early examples of waterfront redevelopments in the 1960s and 1970s (first generation), such as Baltimore and Boston, to second and third generation waterfront redevelopments, which took place during the 1980s and late 1990s respectively (Figure 4.1). Secondly, already well-established waterfront redevelopment cases are selected and reviewed rather than those newly started or in the middle of the redevelopment process. It might otherwise be difficult to get access to resources and to decide whether a case is successful. Thirdly, the cases focus on harbours rather than rivers and canals because many well-established waterfront redevelopments with ample resources are found in harbour (seaside) areas. Above all, for this research, the analysis of large-scale and middle-scale waterfront redevelopment cases provides more reliable data than canals and rivers on which small-scale and sporadic redevelopment has taken place. However, both cases are introduced if they are strongly related to the research purpose. The examination of each waterfront redevelopment case consists of three parts: 1) an investigation of the context and general information, which includes the redevelopment history and planning approaches; 2) a collection of detailed data showing the urban design, planning and architectural approach used in the waterfront redevelopments with illustrations; and 3) a description of the key findings.

**Figure 4.1: Waterfront redevelopments around the world by period and waterfront type**

Redevelopment period	Waterfront types		
	Harbours (seaside)	Rivers	Canals (Docks)
1960s	-Baltimore Inner Harbour (USA, 1963) -Boston harbourfront (USA, 1965)		
1970s	-The Rocks (New South Wales, Sydney, 1970) -Sydney Opera House (Sydney, 1973) -Swansea Maritime Quarter (Wales, 1975) -Granville Island (Vancouver, 1979) -Harbourfront (Toronto, 1972)	-Battery Park City (New York, 1979-2000) -San Antonio (USA)	- Parc De La Villette (1979, Paris)
1980s	-Aker Brygge (Oslo, 1980), -Minato Mirai 21 (Yokohama, 1983), -Queen's Quay Terminal (Toronto, 1983) -Teleport City (Tokyo, n/a), -Ruoholahti (Helsinki, 1986), -Renewal of the old port (Genoa, 1988-2000) -Groninger Museum (Groningen, 1988-94) -Darling Harbour (Sydney, 1988) -Victoria & Albert (Cape Town, 1989) -OJ Havengebied (Amsterdam, 1989) -Tegel Harbour (Berlin, 1987), -Fish Market Hamburg-Altona (Hamburg, 1989). -Cardiff Bay (1987) -South Street Seaport (New York,) -Ring of Fire Aquarium (Osaka, 1990) -Harumi Passenger Ship Terminal (Tokyo, 1991) -Pacifico Yokohama (Yokohama, 1991) -Entrepot West (Amsterdam, 1993) -Xochimilco Ecological park (Mexico City, 1993) -Kuching Waterfront (Sarawak, Malaysia, 1993) -Puerto Madero (Buenos Aires, 1993) -Santory Museum (Osaka, 1994) -Navy Pier (Chicago, 1995) -Duisburg Inner Harbour (Germany, 1991) -Tenerife Link Quay (Santa Cruz, 1998)	-Huang Pu riverfront (Shanghai) -Bilbao (Spain, 1988) -Willamette Riverplace (Portland, 1987) -River Relocation Project (Rhode island, 1987) -Forks Renewal and Assiniboine Riverwalk (Winnipeg, - Canada, 1987), -Kop van Zuid (Rotterdam, 1987-2010) -Boat Quay (Singapore, 1987)	-London Docklands (London, 1981), -Brindleyplace waterfront (Birmingham, 1984)
1990s		-Sumidagawa River Walkway (1990, Tokyo) -Quayside on river Tyne (Newcastle upon Tyne, 1990) -Temple Bar (Dublin, 1991-2000) -Southgate (Melbourne, 1994) -Seine Rive-Gauche (Paris, 1991-2010) -Hyogo waterfront plaza (1997-2003),	-Salford Quays (Manchester, 1990)
2000s	-The Palm waterfront project in Dubai	-Chunggae waterfront redevelopment in Seoul -Haihe River in Tianjin in China	

Source: Based on Breen & Rigby's The New Waterfront(1996) and author's additions



This analysis is set out in Appendix C. The key findings (discussed here) represent lessons which played an important role in shaping the waterfronts, and a summary of the successful and unsuccessful factors.

#### **4.1.1 North American waterfront contexts**

In North America, as in Europe, it was a common phenomenon during the 1950s that the use of waterfronts for industrial, transportation, warehousing and shipbuilding declined. During the 1960s, however, American cities started to redevelop their abandoned and misused waterfronts. In particular, the successful redevelopments of Boston, Baltimore and Toronto's waterfronts have been widely reviewed among practitioners, planners and developers in search of lessons and wisdom (Breen & Rigby, 1994). It can be said that waterfront redevelopments originated from early successful examples – Boston, Baltimore and Toronto – in North America during the late 1950s and early 1960s. Then, “in the 1970s, in North America, where waterfront redevelopment became well-established, the movement has engendered a substantial literature in the field of architecture, planning and urban design” (Hoyle et al, 1998: xvii, Desfor et al, 1998). In the words of Falk (1992: 120):

The real potential of waterside redevelopment was first discovered in the USA. Despite a tendency in the past for North America to adopt European ideas, with port areas throughout the world rationalising their activities, and with the widespread opportunities for releasing land for development, American ideas are being exported to Europe and other areas. A substantial number of grandiose schemes have resulted in North America, Europe and elsewhere, many of which look surprisingly alike (Falk, 1992: 120).

Six North American urban waterfront redevelopments are examined as early examples (see Appendix C) - Baltimore Inner Harbour, Boston, New York, San Francisco, Toronto, and Vancouver.

#### **4.1.2 The European waterfront redevelopment context**

After the success of examples in Boston and Baltimore in the United States and Toronto in Canada, waterfront developments became well established in North America during the 1970s. In addition, by the mid 1980s, “redevelopment was ubiquitous and the process was well-advanced” (Desfor et al, 1988). However, in Western Europe, the redevelopment of abandoned waterfronts, especially derelict docklands and neighbouring maritime quarters, became common in the 1970s and 1980s. There was an awareness of the need and the potential for revitalisation of waterfronts rapidly increased (Pinder et al, 1988: 247). Unlike North American waterfront contexts, European waterfronts were characterised by the strong political, physical and economic relationships which had existed for centuries between port and city (Cook et al, 2001). Because of the historic evolutionary process of cities along the

waterfronts, there existed an abundant cultural and historic heritage that became an important element in designing waterfront space (Vellega, 2001). In addition, European waterfronts were mostly developed along docks, canals, and rivers which penetrated deeply into the urban area (Meyer, 1999) compared to North American harbour waterfronts. Thus, the waterfront redevelopments in Europe were characterised by a relatively small-scale; and a cultural and historic approach using abundant historic heritage that often related to tourism (Vellega, 2001).

In the 1980s, European waterfront redevelopments such as Rotterdam, Barcelona, Genoa, Bilbao, London, Manchester and Cardiff started to along canals, docks, rivers and harbour waterfront. Because of the location of the waterfronts in the urban core, and a strong physical and cultural link between city and port, the redevelopments played a significant role in restructuring the spatial and functional relationships. At the same time, it impacted on economic, socio-cultural environments in the course of the redevelopments. At the heart of this, the UK took the lead in waterfront redevelopment, which became well established in the 1980s, especially along underutilised docks and canals. In European waterfront contexts, eight urban redevelopments are investigated (see Appendix C) - London docklands, Cardiff, Bristol, Brindlyplace, Barcelona, Rotterdam, Genoa, and Bilbao.

#### **4.1.3 The Asian and Australian contexts**

“If the US and the UK may fairly be said to have taken the lead with early work dating from the late 1950s, other nations, particularly in Asia, are rapidly catching up” (Breen & Rigby, 1996: 11). In other words, because of economic advances in the Far East, “the growth of the waterfront redevelopment movement – no longer confined to the North Atlantic sphere but increasingly evident in Australia and parts of the developing world, such as Hong Kong [Japan, China and Seoul] - has produced an increasing number of cases for investigation, comparison and evaluation” (Hoyle et al, 1988: 24).

In the case of Australia, the success of Darling Harbour, Melbourne and Cookle Bay established them as an exemplary models for developers, scholars and practitioners. In Japan, waterfront redevelopment in Kobe, Osaka, Yokohama and Toyko, provided useful lessons in terms of “scale and complexity unlike those found anywhere else” (Breen and Rigby, 1996: 11). In particular, “land-hungry territories like Japan, Singapore and Hong Kong have recently resorted to major reclamation programmes that will allow expansion and development of new infrastructure to facilitate business, port and airport growth” (Bristow, 1988: 167). Asian waterfront redevelopments, followed by the North Atlantic developed countries, adopted lessons of success or failure from their waterfront redevelopments. At the same time, it is

possible to find the pastiches of exemplary models without consideration for different economic and socio-cultural contexts. As a result, many waterfront redevelopments in Asia currently need to explore the potential of waterfront space. Three urban waterfront redevelopment cases are investigated (see Appendix C) – Hong Kong, Yokohama and Sydney.

#### 4.1.4 Other waterfront redevelopments in progress

WaterfrontExpo (2004), the organiser of an international conference and exhibition of world-wide waterfront redevelopments, listed ten principles of successful and sustainable waterfront redevelopments, two of which were that long-term projects involve an on-going development process. Some waterfront redevelopments such as those in Boston and Baltimore and Toronto were already well established. Others, e.g. In East Asia are still undergoing a major transformation process, and are only now discovering the potential of their waterfronts. Clearly, the redevelopment of the post-modern waterfront is still taking place all over the world.

In Australia, Melbourne's 200 hectares of docklands, one of the largest such redevelopments, has made substantial progress with the cooperation of government and the private sector over the past several years. The Docklands has become the centre of Melbourne with its vision of being a world tourist destination and place to live, work and visit in the new millennium (Melbourne Docklands Authority, 2002). The transformation of Victoria Harbour and along the River Yarra is underway with completion planned for 2020 (Figure 4.53).

**Figure 4.53:** Melbourne's Docklands: blueprint of the waterfront for 2020

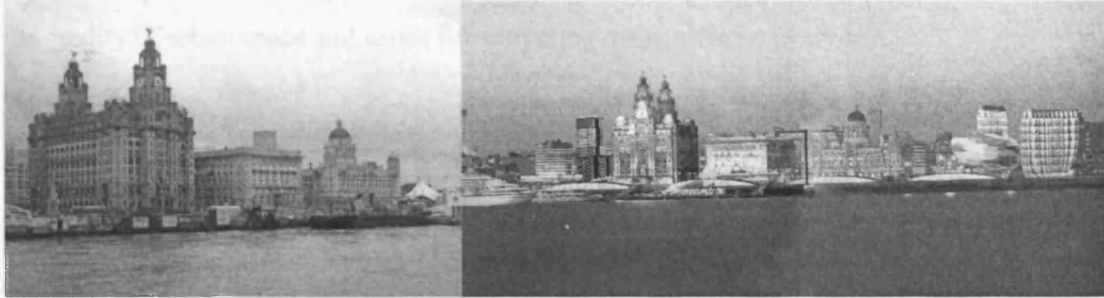


Source: Melbourne Docklands Authority (2002, p67)

In the UK, after a successful bid for the European Capital of Culture 2008, Liverpool's Waterfront will become a flagship, regenerating the 120 kilometre former industrial Kings' Dock and Mersey riverfront (The Mersey Partnership, 2003) (Figure 4.54). The world heritage waterfront site will be transformed to create a world class tourist, leisure and cultural public domain. Six cities applied for the bid and marketed their historic waterfronts and landmark

buildings (Figure 3.9). In many respects, the bid demonstrates the potential of urban waterfronts as cultural public domains, marketing their cities in a globalised world.

**Figure 4.54:** The view of the Three Graces and the new image of the waterfront for 2008



**Source:** [www.aivp.org/image1223.html](http://www.aivp.org/image1223.html) and The Mersey Partnership (2003)

With its great vision of ‘one city nine towns’, The Shanghai government is creating 9 towns around the periphery of Shanghai, which will provide great opportunities along the Huangpu River (WaterfrontExpo, 2004). Although commercially driven so far creates a poor urban waterfront, the Pudong financial district waterfront offers a vision for a world city on a grand scale with, the construction of skyscrapers and the expansion of the city. In a sense, opportunities for the waterfront have become the place where western ideas and capitalist projects are making a mark in China. In this case, there might be hidden dangers due to the large-scale of the waterfront redevelopment emulating those in Europe and North America.

**Figure 4.55:** A view of the Pudong Waterfront with the financial district in the background



**Source:** WaterfrontExpo Shanghai (2004)

In the heart of Seoul in Korea, the 5.4 kilometre long Chunggae waterfront redevelopment was completed in 2005 and attracted hundreds and thousands of people for the opening day. It has been sealed by a concrete structure and an elevated highway on top for more than three decades. Seoul Metropolitan City dismantled the elevated highway and the covered concrete structure of the waterfront to create a new urban public waterfront that symbolises the concern

for the quality of urban space. It provides an unprecedented example because of its scale and of its achievement within four years in the centre of a world city. Although the rapid development process caused a lack of conservation of historic places and community involvement, it is interesting to see the reborn 5.4 kilometre long waterfront already impact on the quality of urban space and urban life attracting many citizens everyday.

**Figure 4.56:** Chunggaee waterfront in Seoul: Before and after



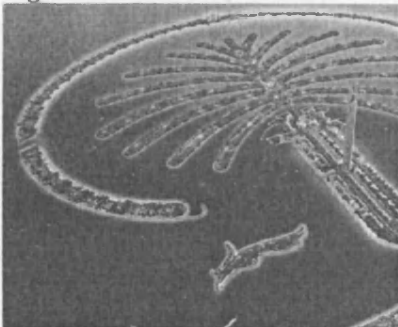
**Source:** [http://www.metro.seoul.kr/kor2000/chunggaehome/seoul/sub\\_hm/4sub\\_03.htm](http://www.metro.seoul.kr/kor2000/chunggaehome/seoul/sub_hm/4sub_03.htm)

In Dubai, an unparalleled vision of The Palm Waterfront project at Jebel Ali, Jumeirah and Deira strives to become 'the eighth wonder of the world' (Figure 4.57). The project provides living, working, leisure, entertainment and world tourist destinations with picturesque sandy shorelines:

Imagine a private beach with 360 degree views of the sea. Imagine the arch of blue sky over white sand. Imagine feeling as if the outside world does not exist, but the technology at your fingertips makes it as near or far as you wish. Imagine an experience that stays with you, no matter where you are. This is a place where luxury meets design, dreams meet reality, and the extraordinary becomes possible. We invite you to become part of a legend in the making (The Palm, 2004).

In particular, the imaginative shape and extraordinary scale of the artificial land filled waterfront is going to provide a cultural and financial hub in the Arabian Gulf.

**Figure 4.57:** Under construction The Palm, Jumeirah in Dubai: Artist's impression of the project



**Source:** [www.thepalm.co.ae](http://www.thepalm.co.ae)

## 4.2 Evaluation waterfront developments around the world



As the examples explored above and in Appendix C illustrates, post-modern waterfront redevelopments continue around the world. Along rivers, lakes, canals and harbours, small and large scale waterfront spaces are still recognised as places of opportunity not only to revitalise their adjacent cities and downtown areas but also to enhance the image of their cities in the era of globalisation. Chaline (1993) argued that waterfront developments throughout the world have two distinctive characteristics:

Firstly, there is the obvious and urgent need to eradicate large areas of derelict land and disused buildings generally located near the central core of the city and not far from some of its decaying historic districts [waterfronts]; secondly, there is an exceptional opportunity to improve the image of the city through a long process of economic and social regeneration of the inner city [waterfront] (Chaline, 1993: 63).

Breen and Rigby (1996) categorised six redevelopment patterns in the post-modern era in the light of the specific usage of the waterfronts (Figure 4.58). These useful categories are applied from early examples up to current waterfront redevelopments. Others have found different rationales for waterfront redevelopments, both in the design and in the process (Yokuuchi, 1998):

- creation of valuable urban amenities
- development of solutions for urban problems
- regeneration opportunity areas
- catalyst of economic benefits
- promotion of new urban infrastructure for sustainable development

**Figure 4.58:** Breen & Rigby's six major waterfront development patterns

Development patterns	Examples	Picture
the commercial waterfront	Rowe's Wharf (Boston, 1987), Riverplace (Portland, 1987) Southgate (Melbourne, 1994) Zuiderterrans café/restaurant (Antwerp, 1991) Queen's Quay Terminal (Toronto, 1983) Navy Pier (Chicago, 1995)	 Rowe's Wharf
the cultural, educational & environmental waterfront	Ring of Fire Aquarium (Osaka, 1990) Monterey Bay Aquarium (Monterey, 1984, 1996-addition) Suntory Museum (Osaka, 1994) Xochimilco Ecological Park (Mexico City, 1993) Mikaeli Concert and Conference Hall (Mikkeli, Finland, 1988) Groninger Museum (Groningen, the Netherlands, 1994) Strahan Wharf Centre (Strahan, Australia, 1992) Sydney Opera House (Sydney, 1973)	 Ring of Fire Aquarium



**the historic waterfront**

The Folks Renewal and Assiniboine Riverwalk (Winnipeg, Canada 1987-)  
 The Rock (Marseille, 1988-)  
 Boat Quay (Singapore, 1987)  
 Norrköping Industrial Landscape and Louis De Geer Concert Hall and Conference Centre (Norrköping, 1993)  
 Puerto Madero (Buenos Aires, 1993)  
 The Rocks (Sydney, 1970-)



The Folks Renewal & Assiniboine Riverwalk

**the recreational waterfront**

Swansea Maritime Quarter (Swansea, 1975-)  
 Sumidagawa River Walkway (Tokyo, 1990-)  
 Park De La Villette (Paris, 1979, 1986-museum)  
 Kuching Waterfront Development (Kuching, Malaysia, 1993)



Park De La Villette

**the residential waterfront**

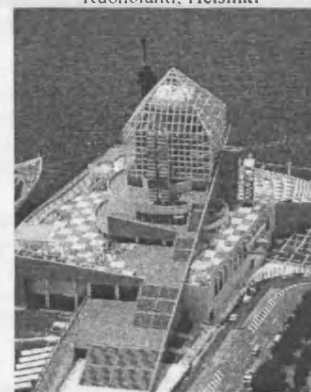
Entrepot West (Amsterdam, 1993)  
 Tegel Harbour (Berlin, 1987)  
 Fish Marekt Hamburg – Altona (Hamburg, 1989)  
 Ruoholahti (Helsinki, 1986-)



Ruoholahti, Helsinki

**the working waterfront & transportation**

Harumi Passenger Ship Terminal (Tokyo, 1991)  
 Berth 30 Container Terminal (Oakland, 1994)  
 Hamburg Ferry Terminal (Hamburg, 1990-2)



Harumi Passenger Ship Terminal

**Note:** The contents adopted from The New Waterfront (Breen & Rigby, 1996)

In contrast to early waterfront redevelopments in the 1960s and 1970s, which mainly focused on the renewal of derelict and underused waterfronts, the emerging post-modern waterfront redevelopments show us that waterfront spaces can be a mixture of cultural, leisure, entertainment and commercially-driven uses. However, it seems that post-modern waterfront redevelopment patterns follow early successful examples such as Baltimore and Boston (Show, 2001). As a result, the characteristics of the waterfront replicate these early examples even though they have different geographical locations, and socio-cultural and economic conditions. According to Bender (1993: 34):

The most striking aspect of many recent urban projects [waterfront redevelopment] is the increasing scale of their parts and, at the same time, the decreasing richness of the 'mix' of activities and uses they contain. The most interesting counter-trend has been an attempt to break these projects down, to add variety and complexity and to weave the new construction into the texture of the city (Bender, 1993: 34).

The review of examples from around the world revealed both the successes and failures of waterfront redevelopments as well as the successful and unsuccessful factors in the redevelopment process. Furthermore, it found that, depending on economic circumstances, the redevelopment patterns, period and process of waterfronts varied in North America, Europe and Asia (Figure 4.59). At the same time, it also found many similar approaches following the early successful examples. This section of the theses attempts to draw out the successful factors from the broad range of experience examined in Appendix C.

**Figure 4.59:** The characteristics of urban waterfront redevelopments in different continents

	North America	Europe	Asia
<b>Major cities</b>	Baltimore, Boston, New York, Toronto, Vancouver	Genoa, Venice, Salford, Docklands, Bilbao, Barcelona	Hong Kong, Shanghai, Osaka, Yokohama, Seoul, Dubai
<b>1. redevelopment period</b>	<ul style="list-style-type: none"> <li>well-established in the 1970s (Hoyle &amp; et al, 1998)</li> <li>by the mid 1980s, redevelopment was ubiquitous and the process well-advanced (Desfor et al, 1988)</li> </ul>	<ul style="list-style-type: none"> <li>well-established in the 1980s especially in the United Kingdom (Hoyle et al, 1998)</li> </ul>	<ul style="list-style-type: none"> <li>well-established in the 1990s (Hoyle et al, 1998)</li> </ul>
<b>2. Port &amp; city relationship</b>	<ul style="list-style-type: none"> <li>Cities were, for the most part, opportunistic and speculative in their spatial generation (Cook et al ,2001)</li> <li>The waterfronts were formed instantaneously to exploit resources or take advantage of trade routes (Cook et al ,2001)</li> <li>One of the most remarkable aspects of port areas in American cities, in comparison with their European counterparts, is the initial absence of striking contrasts in spatial form and use between the site of port activities and the rest of the city (Meyer, 1999:183)</li> <li>Network of public streets penetrating deeply into the water (Meyer, 1999:193)</li> <li>Port zone is a continuation of the grid into the water (Meyer, 1999:193)</li> </ul>	<ul style="list-style-type: none"> <li>Stronger relationship with city and port than any other waterfronts</li> <li>The cultural heritage of the waterfronts is an important element when designing waterfront space (Vallega, 2001:339)</li> <li>The factor of time forged a stronger bond between both for long periods (Cook et al ,2001)</li> <li>Interwoven physically, politically and economically for centuries (Cook et al ,2001)</li> <li>Many ports are older than American ports (Cook et al ,2001)</li> <li>Network of waterways penetrating deeply into the urban fabric(Meyer, 1999:193)</li> </ul>	<ul style="list-style-type: none"> <li>Strong functional relationship between port and city</li> <li>But the relationship between the existing urban fabric and waterfront is less strong.</li> </ul>
<b>3. Scale &amp; pattern</b>	<ul style="list-style-type: none"> <li>Large scale modernistic new redevelopment</li> <li>Landfill</li> </ul>	<ul style="list-style-type: none"> <li>Small scale historic-contextual approach to redevelopment</li> <li>Very attractive cultural-historic development, related with tourism (Vallega, 2001:339)</li> </ul>	<ul style="list-style-type: none"> <li>Large and small scale</li> <li>Very modernistic redevelopment approaches</li> <li>Landfill</li> </ul>
<b>4. Urban morphology</b>	<ul style="list-style-type: none"> <li>The influence of the port less the impact on the spatial organisation and physical layout (Cook et al 2001)</li> <li>Pier- oriented (Cook et al ,2001)</li> </ul>	<ul style="list-style-type: none"> <li>overlapping Greek, Roman , Renaissance and Medieval urban structure (Cook et al ,2001)</li> <li>Great influence on the urban morphology of European cities (Cook et al ,2001)</li> <li>Dock-oriented (Cook et al ,2001)</li> </ul>	<ul style="list-style-type: none"> <li>Varies depending on the country but the landfill process influenced the waterfront morphology in places such as Hong Kong, Japan</li> </ul>

**Note:** Contents in the table summarised by author



### **4.2.1 An evaluation of waterfront redevelopments**

The criteria of success are various and complex. Assessing successful waterfront redevelopments often involves measuring “by roughly the same standards of performance: the civic, or how many people go there; the commercial, or how much money people spend there to live or work or shop; and the environmental, either how lightly a project impacts the water around it or how much the project remediates the once industrial land it occupies” (Castil, 2002: 105). Malone (1993: 116) also argued that:

In assessing any individual waterfront redevelopment, issues are exposed which may be common to waterfront developments and other large-scale urban renewal projects. However, allied to the question of the universality of the issues surrounding waterfront development is the more fundamental question of assessment: that is, the question of how we formulate criteria or define success (Malone, 1993: 116).

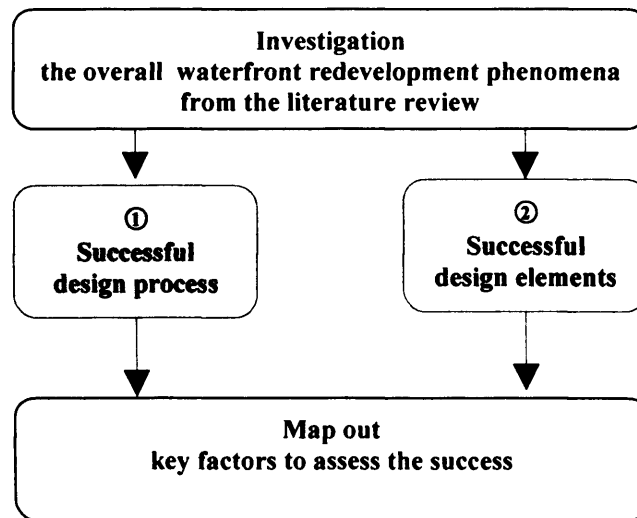
In many respects, measuring the criteria of the success of each waterfront redevelopment, which has different characteristics depends on time, location and social/cultural background, and is complex and subjective because defining success is strongly related to many layers of socio-cultural, economic, environmental and design perspectives. For example, the redevelopment of Boston’s Rowe’s Wharf is very successful in terms of its economic impact, but not in its use of public space. Despite the complexity of measuring success, some cases, such as Baltimore Inner Harbour, Boston, Darling Harbour, Toronto, Vancouver, and Yokohama are consistently introduced as models to follow (Millsbaugh, 2001). Each case illustrates a different side of success but are often quoted by researchers and developers. In addition, common factors which can be measured as successful were found in spite of the relatively subjective nature of attempts to define success.

Although defining success varies depending on redevelopment patterns, time and location, the literature review of the world-wide waterfront redevelopments provided useful information to formulate common criteria that led eventually to successful waterfront redevelopment. These are discussed against two important factors:

1. a successful design process
2. successful design elements

An examination of the two factors will provide detailed information on the successful design of waterfront spaces and map out criteria to assess success (Figure 4.60). In addition, it helps to map out the characteristics of the cultural waterfront compared to other waterfront redevelopments in the next chapter. Furthermore, an analysis of these two factors and the findings will be a foundation for making an analytical framework and collecting data for conducting a case study.

**Figure 4.60:** The criteria for mapping out successful waterfronts



### 4.2.2 Successful design processes

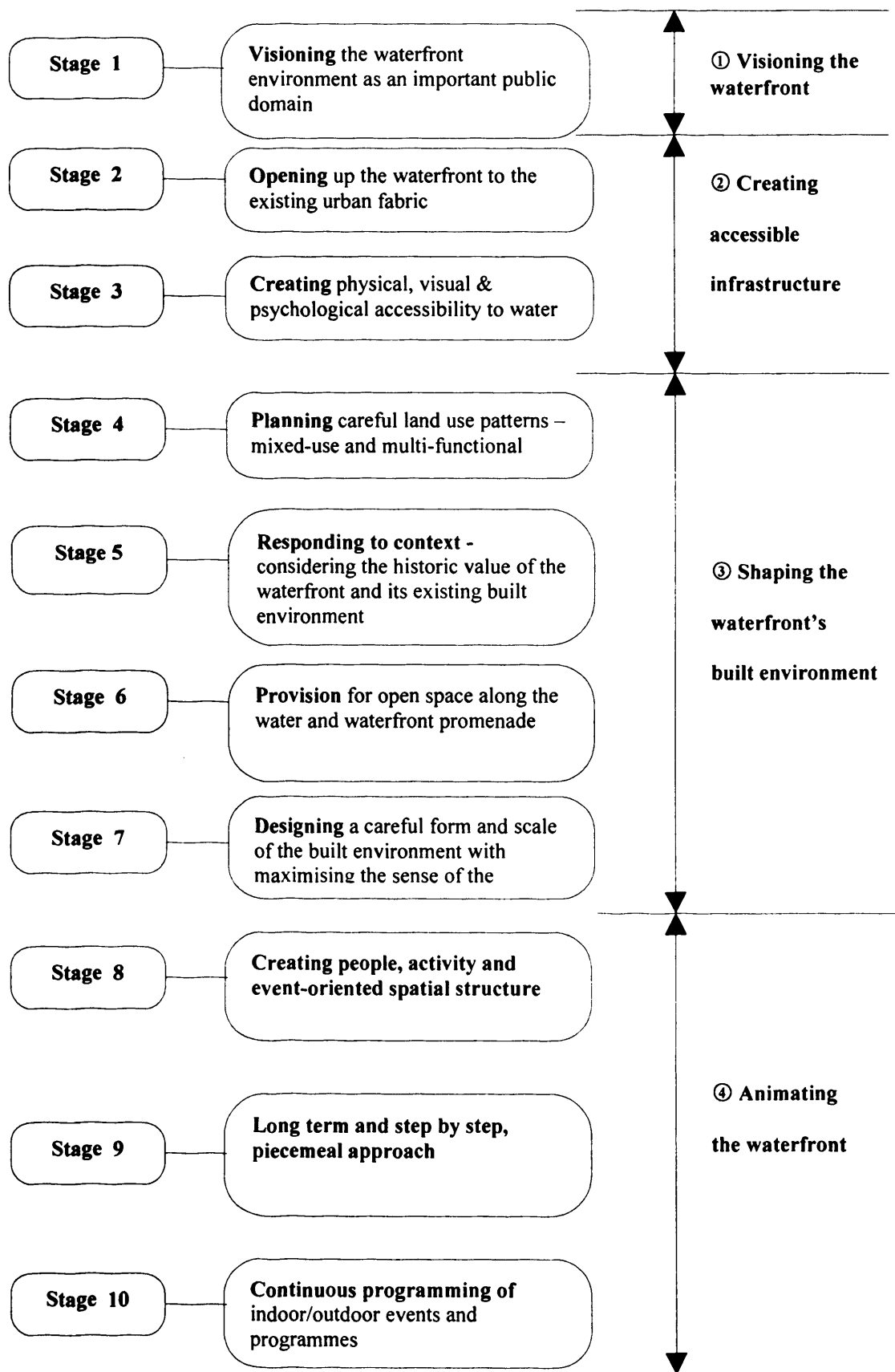
Falk (1992: 133) emphasised that successful waterfronts had a characteristic process in the course of redevelopment – “redevelopment strategy, adaptive reuse, research & consultation and community partnerships”. Successful cases such as Baltimore, Yokohama, Bristol, Vancouver etc depended on long-term design processes from early to final stages. ‘Ten design stages’ for successful waterfront redevelopments were found from the review of worldwide examples, although there were some differences depending on the redevelopment purpose (Figure 4.61). These ten stages can be organised into four main parts:

1. visioning the waterfront
2. creating accessible infrastructure
3. shaping the waterfront’s built environment
4. animating the waterfront

#### ① Visioning the waterfront

Visioning the waterfront is related to the initial redevelopment approach to derelict and underutilised waterfronts. It appears to be a more important stage than any other because the outcome and success of the redevelopment is strongly related to the initial vision and attributes of the waterfront. In particular, visioning the waterfront as a public domain was essential and common to all successful waterfronts, especially cultural waterfronts. Although the level of public use might be different in terms of redevelopment purposes, using waterfront spaces as a public domain was identified as an important beginning in designing a waterfront space.

**Figure 4.61: Successful design processes**



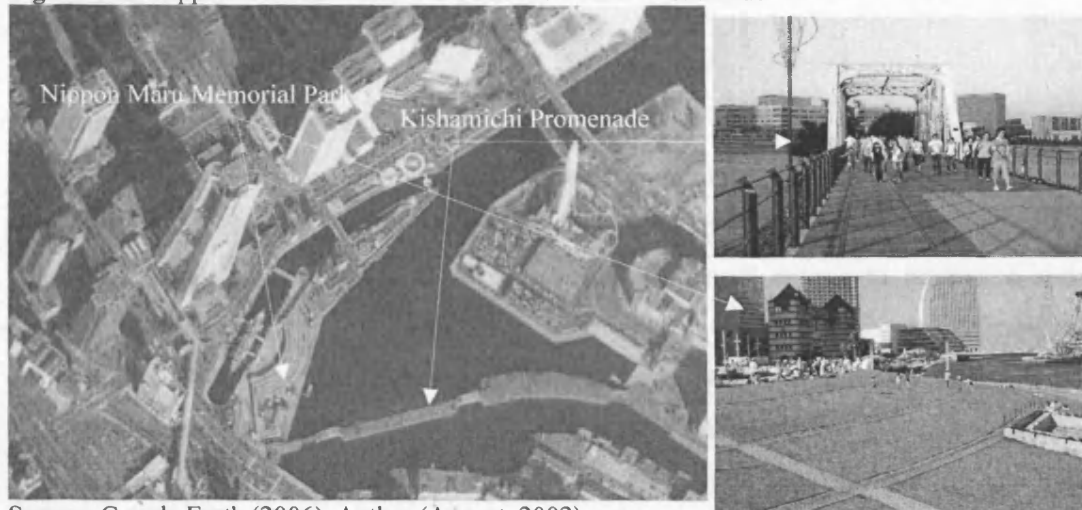
Source: Author (2002)

For instance, in the case of Yokohama Minato Mirai 21, the conversion of the dockside into Nippon Maru Memorial Park, and adaptive reuse of an industrial railway in the Kishamichi Promenade as public space played an important role in creating a high quality and successful urban waterfront. Above all, these public spaces draw people near to the water's edge and provide ample space for those escaping from the dense surrounding built environment and the heavy traffic flow (Figure 4.62). The conversion of these two linear public spaces in the redevelopment process provides a foundation for the current success of this cultural destination. In addition, the spaces have become the focal point of the waterfront, creating a sense of place.

The analysis of many waterfront redevelopment cases revealed that creating public domains on the waterfront also meant the provision of infrastructure for public domains such as streets, open spaces, waterfront promenades, access between city and waterfront, etc. maximising the sense of the waterfront in creating a public domain was critical for success.

However, there were many unsuccessful cases because of the failure to create the waterfront space as a public domain in the early redevelopment stage. One typical cause was abandoned waterfront spaces being used for urban arterial roads. This was quite common in most North American waterfront cities - New York, Boston, Seattle, San Francisco and Toronto. In some sense, the waterfronts are highly dominated by transportation infrastructure, especially roads for vehicles rather than pedestrians (Figure 4.63). The transportation infrastructure was usually constructed during the 1950s and the 1960s. In the 20th century, urban spatial development, especially in the American context, transportation infrastructure – expressways, railways, interstate highways and bridges – was a major structuring element in developing cities.

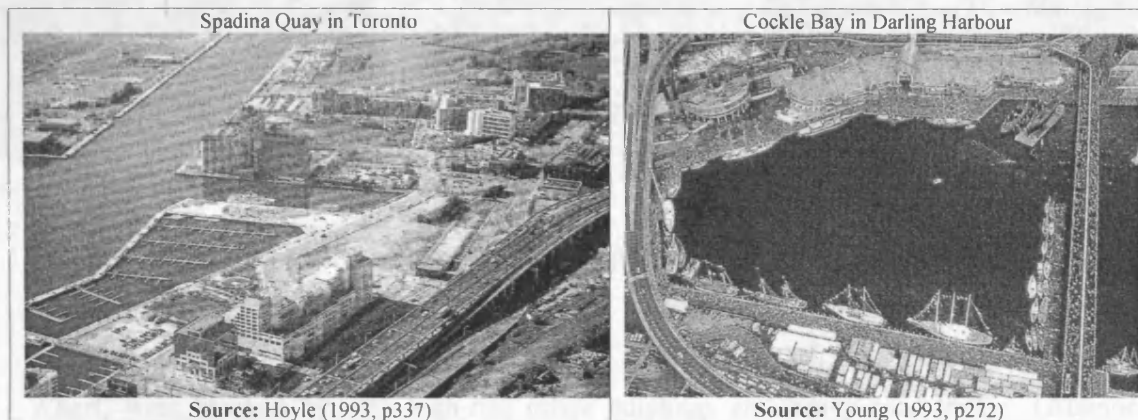
**Figure 4.62:** Nippon Maru Memorial Park and Kishamichi Promenade



Source: Google Earth (2006). Author (August, 2002)

As a result, the use of disused waterfronts was predominantly as transportation corridors to avoid congestion within inland cities. New York's South Street waterfront, constructed in the period when Moses was Mayor of New York, is a good example. The elevated South Street highway along the Hudson River became a problematic visual and psychological barrier to the current South Street Seaport (Figure 4.63). Similar cases were also found in North American waterfronts, such as the elevated John F. Fitzgerald Expressway and Atlantic Avenue in Boston; the elevated Alaskan highway in Seattle; and the Embarcadero freeway in San Francisco, now demolished after the earthquake in 1989.

**Figure 4.63:** Examples of waterfronts that have been dominated by urban artery roads



To sum up, depending on the development purpose, the priority and importance of creating a public domain may be different. Although different development purposes have different forms and sizes of constructed public domain, the provision of a public domain in the early planning stage was common in the successful waterfront. In the case of socio-cultural and leisure/entertainment purposes, the importance of the public domain in the spatial planning of waterfront space becomes a top priority. Thus, visioning the waterfront space as a public domain in the early redevelopment stage may be one of the most significant elements for success, especially from a long-term perspective.

## ② Creating accessible infrastructure

The international review showed that every successful waterfront redevelopment was characterised by physical, visual and psychological accessibility. It identified that creating accessible infrastructure on the waterfront was an essential means to guarantee success. Furthermore, the creation of accessible infrastructure is created for waterfronts being perceived as public domains. For example, Embarcadero Waterfront in San Francisco clearly showed how the removal of the elevated Embarcadero Expressway after the Loma Prieta earthquake in 1989 transformed the quality of the waterfront with regard to physical, visual

and psychological accessibility (Figure 4.64). The elevated highway structure bisected downtown and the waterfront. As a result, it became a barrier impeding opportunities for accessibility between downtown and the water. It also reduced the great potential of an urban waterfront public space.

**Figure 4.64:** The Embarcadero waterfront after the demolition of the expressway

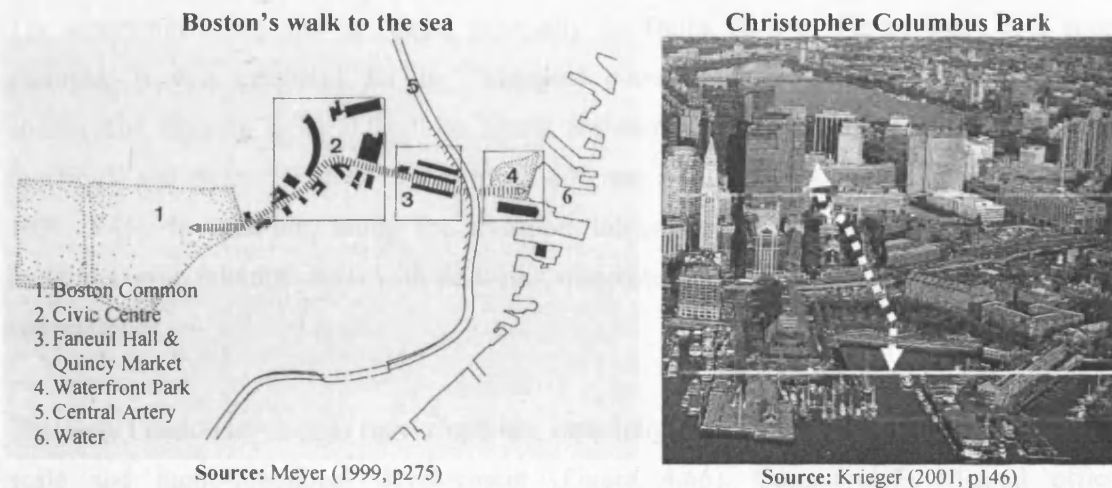


Boston's Christopher Columbus Park is another good example emphasizing the importance of accessible infrastructure and opening up the waterfront to the city. Boston's central waterfronts (Figure 4.3), such as Rowe's wharf, Foster's Wharf, India Wharf and Central Wharf, were blocked by both high-rise office buildings and heavy road traffic (Atlantic Avenue on the ground and the elevated John F. Fitzgerald Expressway). Consequently, the central waterfronts enjoyed physically and visually poor accessibility from downtown to water and vice versa. In addition, the lack of public open space on the central waterfronts reduced public use due to the large scale of commercial development. Central Wharf and Christopher Columbus Waterfront Park were the only exceptions as they accommodated open spaces and cultural facilities. The Christopher Columbus Waterfront Park became an important waterfront public space, which connected Boston's historic axis from Boston Common, and traversed the Civic Centre and Faneuil Hall to the waterfront park between the city and the water, although heavy traffic movement was still an obstacle (Figure 4.65).

From these two examples and other cases in the review, two important notions for creating accessible infrastructure were found. One was to create accessible infrastructure from the existing downtown to waterfront space. The other is to create accessible infrastructure from the waterfront space to the water. The latter relates the relationship between the five realms of waterfront space and water, which was examined in chapter 3 (Figure 3.20). It requires careful design approaches and strategies for land use and spatial arrangement of the built environment to maximise the sense of the waterfront compared to the former, which is characterised by a large scale relationship between the city and the waterfront. The analysis of the physical

characteristics of waterfront spaces (Figure 3.26, 3.27 and 3.33) suggested that communication between the water and the rest of the realms was critical to improving the quality of the waterfront and patterns of its use. To sum up, to create accessible infrastructure, the redevelopment processes has to include both aspects – accessibility from the city to the waterfront space and to the water and vice versa.

**Figure 4.65:** Creating an accessible waterfront in Boston



### ③ Shaping the waterfront's built environment

Shaping the waterfront's built environment concerns giving a specific character, such as commercial, environmental, residential, recreational, historic or cultural, to the waterfront. By constructing specific building types on waterfronts, their somewhat neutral spatial character was adapted to serve a new function. In addition, the physical composition and functional distribution of buildings along waterfronts plays a significant role in the success of developments. As Figure 4.61 shows, four distinctive steps were found in successful waterfront redevelopments at this stage:

1. mixed-use land use/multi-functional buildings, small-scale and step by step approach
2. provision of public open space in the redevelopment process
3. contextualism – adaptive reuse of the existing historic buildings, objects and places
4. good quality architectural design

Mixed-use and small-scale redevelopment patterns were very common in the successful waterfront schemes. The mixed-use and small-scale approach was typical for developing post-modern urban spaces in contrast to zoning and large-scale approaches which represented modernistic urban development. Bender (1993: 34) mentioned the vulnerability of the large-scale and mono-functional zoning approach, saying that "the most striking aspect of many



recent urban projects is the increasing scale of their parts and, at the same time, the decreasing richness of the mix of activities and uses they contain". In the case of waterfront redevelopment, the large-scale and zoning redevelopment approach, such as London's Docklands or the Waterfront Sub-centre in Tokyo, often led to poor interactions between the built environment and water, a substantial level of risky economic investment, and in many cases a lack of diversity .

The waterfront Sub-centre in Tokyo, especially the Daiba District (Figure 4.66), is a good example. It was criticised for its "transport planning, zoning by function (business, commercial, housing, cultural facilities, sports, and recreation) and the division of blocks is all functional and clear-cut. They are not much different from the concepts of the past" (Jinnai, 1993: 246). In addition, along the transport infrastructure routes, there were high-rise buildings on an inhuman scale with skywalks, disconnected visually and physically from their surroundings.

The early London Docklands redevelopment, especially Canary Wharf also illustrated a large-scale and mono-functional development (Figure 4.66). Commercially-oriented office buildings with a high-density for generating economic benefits resulted in: poor liveability after work; lack of a public domain, despite the advantage of the dockside waterscape; and poor consideration of the existing community. As a result, "the developments often look like moated fortresses rather than attractive places or destinations" (Falk, 1993: 24). Although there are exceptional cases like Vancouver, where high-density residential and commercial developments co-exist alongside high quality parks and public spaces, it seems that mixed-use and small-scale approaches in post-modern waterfronts play a crucial role in producing vitality, diversity, and a creative socio-cultural environment.

**Figure 4.66: Blight of large-scale and mono-functional zoning approaches**

**Tokyo Waterfront Subcentre**



Source: Graafland (2001, p199)

**London Docklands development, Canary Wharf**



Source: Meyer (1999, p95)



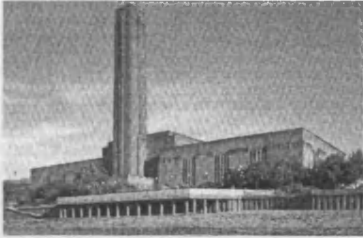
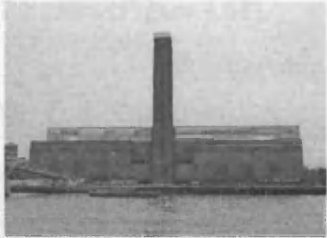







One of the prominent characteristics of designing post-modern urban spaces is the concept of 'contextualism' – The rediscovery of the historic built environment and its value. "Contextualism is a somewhat pompous architectural term developed in the 1980s to describe a well-developed and widely agreed belief that buildings and building developments should be in context with their settings" (Bullock and Trombley, 1999: 167). In particular, the application of the historic built environment becomes one of the most important elements for successful urban regeneration. Rossi (1984) argued that the city is a historic artefact, an evolving, man-made object and the representation of cultural values. In addition, "the value of old buildings is a symbol of communal memory" (Shaw, 2001: 169). Rediscovery of the value of the 'historic built environment' is widely accepted, as seen by the renovation, refurbishment and adaptive reuse of many historic buildings. This trend also extends to historic objects and places. Covent Garden (previously a market) in London, Fanueil Hall (previously a market) in Boston, Parc de la Villette (previously a slaughterhouse) in Paris, and South Street Seaport (previously market) in New York are all typical examples of the successful modern use of historic buildings, objects and places. This approach (contextualism) played a significant role in current successes.

There is no exception to this aspect of waterfront redevelopment because all waterfronts by their nature flourish with historic artefacts, especially industrial/ maritime heritage. For instance, the Tate Modern, located on the River Thames in London is a dramatic transformation of a former power station to gallery, exemplifying the successful adaptive reuse of historic buildings with positive economic and socio-cultural outcomes (Figure 4.67). According to statistics produced by Southwark Regeneration & Cross River Partnership (2000):

On 23<sup>rd</sup> October [2000], 165 days after opening, Tate Modern welcomed its three millionth visitor. The projected figure for the entire first year of opening was two million. It is estimated that it will bring between 50 and 90 million pounds of economic benefits to London and help to create 2, 400 new jobs (Southwark Regeneration and Cross River Partnership, 2000).

In Yokohama, the reuse of the former 10-metre-deep dock of Mitsubishi Heavy Industry as an eating, drinking and event place is another striking example of the redevelopment of a 'historic place' (Figure 4.67). Finally, the conversion of 'historic objects', such as water-related artefacts - ships, submarines, anchors and industrial structures into a maritime museum and a public art gallery played an important role in improving the quality of waterfront environments and their vitality (Figure 4.67).

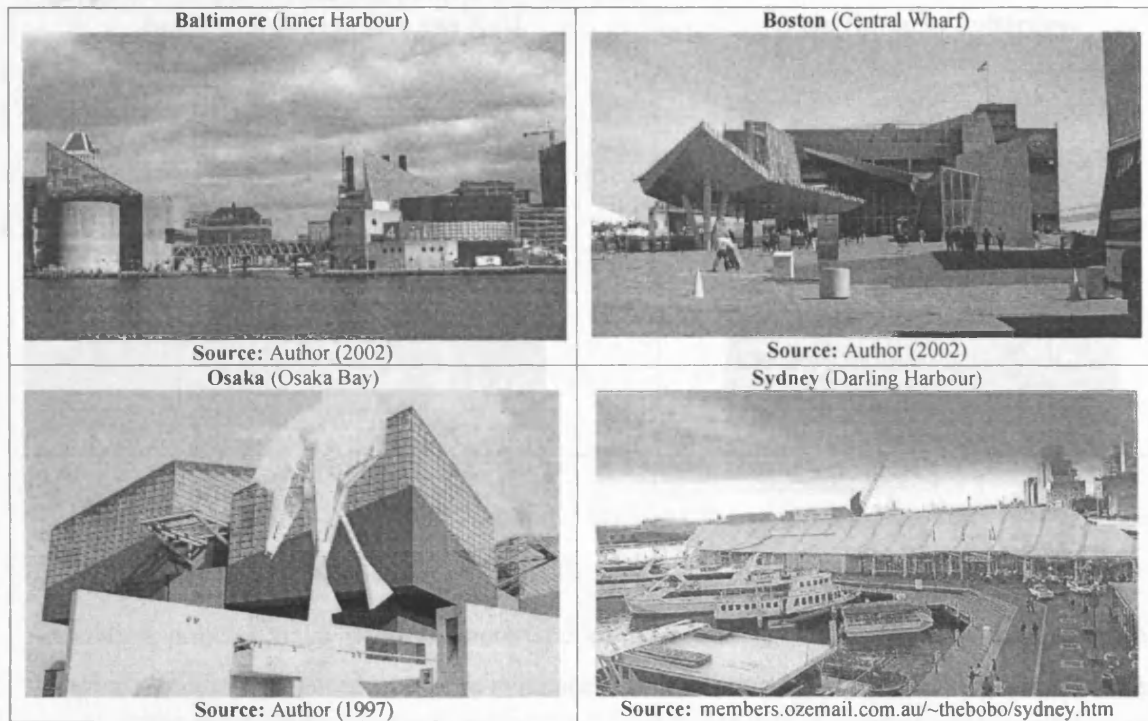
**Figure 4.67:** Adaptive reuse of historic buildings, objects and places on the waterfront

	Before	After
Historic buildings	<b>Tate Modern before conversion in London, 1997</b>  Source: Hornak (1999, p62)	<b>Tate Modern in London</b>  Source: Author (2002)
	<b>USS Constellation in Baltimore in 1914</b>  Source: www.constellation.org	<b>USS Constellation, Today (Maritime Museum)</b>  Source: Author (2002)
Historic objects	N/A	<b>Public art in Yokohama Minato Mirai 21</b>  Source: Author (August, 2002)
	<b>Dockyard in Yokohama</b>  Source: Yokohama Minato Mirai 21 (2002, p93)	<b>Dockyard Garden in Yokohama</b>  Source: Yokohama Minato Mirai 21 (2002, p93)
Historic places	<b>Oval Basin for dock in Cardiff</b>  Source: <a href="http://www.cardiff.gov.uk/cardiff/old_images/photos/Docks1910.jpg">http://www.cardiff.gov.uk/cardiff/old_images/photos/Docks1910.jpg</a>	<b>Oval Basin Gathering place in Cardiff</b>  Source: Johnston (2003, p16)

The review also identified the importance of good quality architectural design – form, scale, material, height, colour and style – which also played a vital role in shaping the environment with a symbolic landmark acting as a magnet to attract visitors to the area. For instance,

aquariums, such as Baltimore Inner Harbour and Boston, Osaka and Sydney, became important landmarks and magnets. Interestingly, because of their unique architectural design, they became an essential part of the image of the waterfront for users (Figure 4.68).

**Figure 4.68:** Unique architectural design of aquariums on waterfront



As Lynch (1958: 8) argued, “An environmental image may be analysed into three components: identity, structure and meaning”. In many ways, high quality architectural form alongside water gives a strong identity and meaning to an environment and not only creates a potent image of the waterfront but also plays an important role in forming a strong spatial and structural element. Rotterdam and Amsterdam are other useful examples in terms of improving the quality of waterfront space through their unique and experimental waterfront architecture compared to waterfronts in North America, which “have an obsessive desire for everything to be the same, to reduce everything to the lowest common denominator” (Marshall, 2001: 157). Erasmus Bridge in Rotterdam clearly showed how high quality, symbolic architecture creates legibility and acts as a reinforcing structure between the old town and the new waterfront – Kop van Zuid (Figure 4.69). According to Meyer (1999: 378), combined with Kop van Zuid City Boulevard, Erasmus Bridge:

Could prove to be the first new structuralising element in Rotterdam's post war history that has significance on various levels of scale: as a connection to the highway network, as a local connection between the two halves of the city, and a common element uniting bordering urban neighbourhoods (Meyer, 1999: 378).

Experimental architectural form and design in Kop van Zuid and the enclosed Oude Haven waterfront nearby also demonstrated how architectural form and design influenced the quality of the waterfront (Figure 4.69).

**Figure 4.69: Unique architectural form on the waterfront**



#### ④ Animating the waterfront

Animation policies have been characteristic of post-modern urban space design. In the waterfront redevelopment process, the evidence from the international review showed that the importance of animation policies through 'events and programmes' was no different in creating successful waterfronts from the animation policies in urban public spaces. In addition, the successful animation of the waterfront space was also strongly related to the spatial structure of the built environment and the redevelopment approach. Three important factors were found in the animation policy which contributed to successful waterfronts.

Firstly, the people, activity and event-oriented spatial arrangement which played a crucial role in animating the waterfront, were characterised in the course of shaping the built environment stages. In other words, the spatial arrangement made a more friendly environment for the user and gave great opportunities for accommodating outdoor events and programmes.

Secondly, the long-term, step by step, 'incremental approach' (Falk, 1995), and 'piecemeal' (Alexander et al, 1987) approaches were identified in successful waterfront redevelopments. Research showed that large scale and 'big bang' approaches resulted in a lack of public domain, vitality and provided an unsociable built environment, such as Docklands in London, the Waterfront Sub-centre in Tokyo and Chicago riverfront in the downtown area (Figure 2.13).

The waterfront redevelopment process “takes 10, 15 or 25 years. The understandable desire to achieve instant results should be resisted in all except the smallest steps. Development over time allows a richness of character vs. the sameness of a one time ‘Big Bang’ approach” (The Urban Waterfront Centre, 2002). The ‘step by step’, ‘piecemeal’ and ‘long-term’ approaches reduce the risk of financial problems and the possibility of failure. Furthermore, much research has shown that it is essential for development approaches to create diversity and vitality. Based on his research ‘what makes building catalytic’, Sternberg (2002) insisted that there are benefits to the small scale approach to development:

A facility drawing 35,000 attendees once a week would be far less catalytic than five facilities each attracting 1,000 attendees each day, although both bring 35,000 visitors per week. The larger facility is inferior because it fails to generate the continuous vitality on which retail areas depend. Properly constructed, the index would give greater weight to multiple facilities generating frequent (or better, continuous) flows of small crowds than to single facilities generating infrequent but massive flows (Sternberg, 2002: 40).

Finally, the role of regular and periodic indoor/outdoor events identified important policies for the success and vitality of the waterfronts. Hosting international events, locally organised festivals and random street performances were critical factors in animating waterfront spaces and success. For instance, the Rouse company’s notion of a ‘festive marketplace’, which combined eating, shopping, entertainment and year-round outdoor/indoor events and programmes, showed the importance of events/programmes in animating the waterfront and attracting people to Baltimore Inner Harbour. In addition, local, national and international events, such as ‘ethnic festivals’, ‘city fairs’, international tall ship gathering for the celebration of ‘Independence Day’ contributed to the image of the waterfront and its long-term success (Figure 4.70). Above all, those national and international events played an important role in place marketing, which led the Baltimore waterfront to become a world waterfront.

**Figure 4.70:** International events, Tall Ships exhibition, in Baltimore.



Source: Area Convention and Visitor’s Association (2002, p18)

Queen's Quay Terminal in Toronto's Harbourfront, a converted industrial warehouse now a mixed-use complex, was the place where "4,000 annual events took place since the earliest days of the undertaking" (Breen & Rigby, 1994: 22). The events/program themselves became a symbolic landmark in shaping the image of the waterfront.

Charlestown Navy Yard is a good example of how events and programmes actually play an important role in creating a new identity for the regenerated waterfront. "A new mayoral administration attempted to change the site's image after 1983 by making it the centrepiece of the city of Boston's annual Harbourpark Celebration, attracting crowds on the Fourth of July" (Gordon, 1996: 271). In other words, designing social events and nurturing cultural diversity to utilise the public realm within the waterfront environment are equally significant ingredients for success.

With regard to animating waterfront space, one of the most distinctive characteristics, compared to the inland public domain, is the animation of the water surface realm with water-related floating objects such as marinas, historic tall ships, battleships water taxi service, cruise facilities etc. The evidence clearly shows that the animation of water surfaces through floating objects influences vitality and generates activities (Figure 4.71). For example, Pinder et al (1999: 883) introduced examples of historic ships as a means to animate the naval waterfront:

Ships are mobile resources, and competition for them now comes from commercial docklands revitalisation schemes as well as other naval waterfronts. This is evident not only from comparative analyses at the national scale, but also from specific locality experiences. In San Francisco, for example, the submarine USS Pampanito is not moored at Fort Mason, a leading military port for troop despatch to the Pacific Theatre in World War II, but at Pier 45 on Fisherman's Wharf. Across San Francisco Bay the USS Potomac, Franklin D Roosevelt's 'Floating White House', can be visited in the commercial port of Oakland. Similarly, in the UK, HMS Belfast, a D-Day relic, is moored on the Thames in London; the recently decommissioned royal yacht Britannia has been incorporated into the revitalisation of Leith, a Scottish port lacking naval connections; and in 1999 the Chatham Dockyard was obliged to compete with a Malaysian maritime museum in order to secure HMS Cavalier, the Royal Navy's last surviving World War II destroyer. In today's competitive world, there is no immutable link between historic naval vessels and naval ports (Pinder and Smith, 1999: 883).

So far, an overall description of the 10 stages in the successful design process has been given under four main parts. Although the successful waterfront redevelopment process does not always follow this order, it was generally observed throughout the international review. On the basis of the 10 successful design stages, Figure 4.72 provides an evaluation of the waterfronts which were examined (see Appendix C). It shows the rating of each waterfront

redevelopment in terms of the 10 stages of the design process. At the same time, it also evaluates (based on review in the literature) each stage of the design process.

**Figure 4.71:** Selected US naval ship exhibits and their attendance

<b>Ships</b>	<b>Location</b>	<b>Attendance</b>
<b>Aircraft Carriers</b>		
USS Intrepid (plus six other ships)	New York, NY	410,000
USS Lexington	Corpus Christi, TX	340,000
USS Yorktown	Charleston, SC	294,000
<b>Battleships</b>		
USS Alabama & Drum	Mobile, AL	365,000
USS North Carolina	Wilmington, NC	230,000
USS Massachusetts	Fall River, MA	108,000
USS Texas	Houston area	145,000
<b>Submarine</b>		
USS Pampanito	San Francisco, CA	250,000
USS Nautilus	New London, CT	244,000
USS Blueback	Portland, OR	120,000
<b>Other</b>		
USS Kidd (Destroyer)	Baton Rouge, LA	60,000
National Maritime Museum (four ships)	San Francisco, CA	165,000

**Source:** Pinder and Smith (1999, p884)

### 4.2.3 Successful design elements to be considered

In the previous section, ‘10 design stages’ were identified and described on the basis of findings from the international review. The design stages were associated with important design elements in the successful waterfront redevelopments, regardless of contextual factors ie cultural, commercial, leisure/entertainments, historic etc. As the literature review demonstrated, various successful design elements were found in many different redevelopment patterns. At the same time, despite having different redevelopment patterns, they shared many common factors. Five categories of main design elements were identified:

1. urban waterfront form
2. five realms of waterfront space
3. the built environment
4. historic artefacts
5. events/programmes



**Figure 4.72:** The evaluation of waterfront redevelopments in terms of ten stages of the successful design process

Legend																	
		Excellent	Good	Fair	Very Poor												
		■	■	■	□	Baltimore (Inner Harbour)	Boston (Row's Wharf)	Boston (Charlestown Navy Yard)	New York (Battery Park City)	New York (Fulton Street)	San Francisco (Embarcadero Centre)	Vancouver (False Creek & Granville Island)	Toronto (Harbour Front)	UK (Salford Quays)	UK (London Docklands)	UK (Cardiff)	UK (Bristol)
Stage 1	Visioning the waterfront environment as an important public domain	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Stage 2	Opening up the waterfront from existing urban fabric	■	□	■	■	■	□	■	■	■	■	■	■	■	□	■	■
Stage 3	Creating physical, visual and symbolic accessibility to water	■	□	■	■	■	□	■	■	■	■	■	■	■	□	■	■
Stage 4	Planning a careful land use pattern – mixed-use and multi-functional	■	■	■	■	■	■	■	■	■	■	■	■	■	□	■	■
Stage 5	Contextualism - considering the historic value of the waterfront place and its existing built environment	■	■	■	□	■	■	■	■	■	■	■	■	■	■	■	■
Stage 6	Provision for public open space and waterfront promenade along the water	■	■	■	■	■	■	■	■	■	■	■	■	■	□	■	■
Stage 7	Careful form and scale of built environment design	■	■	■	□	■	■	■	■	■	■	■	■	■	■	■	■
Stage 8	People, event and activity-oriented spatial composition	■	□	■	■	■	□	■	■	■	■	■	■	■	□	■	■
Stage 9	Long term and step by step design process	■	□	■	□	■	□	■	■	■	■	■	■	■	□	■	■
Stage 10	Continuous programming of indoor/outdoor events and programmes	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

Source: Author (2003)



## **1) Urban waterfront form**

‘Urban waterfront form’ refers to urban form that is shaped by the interrelationship of the existing urban fabric, the waterfront and the water, and vice versa. Two important elements were found in designing urban waterfront form in the course of the redevelopment process. One was accessible urban waterfront form. The other was the proximity of the waterfront and existing urban fabric.

Many waterfront redevelopments clearly showed that designing a functional and geographic link between the existing urban fabric, the waterfront and the water was an important factor in generating a critical mass of pedestrian traffic and sustaining the vitality of the waterfront. Central Wharf in Boston, Fulton Street in New York, the Inner Harbour waterfront in Baltimore, Darling Harbour in Australia, Embarcadero Centre in San Francisco and Minato Mirai 21 in Yokohama all waterfronts owed their success to accessible urban waterfront form and proximity to the existing downtown. Thus, creating accessible urban waterfront form which connects the water, the waterfront and existing urban fabric is an essential design element.

## **2) The five realms of waterfront space**

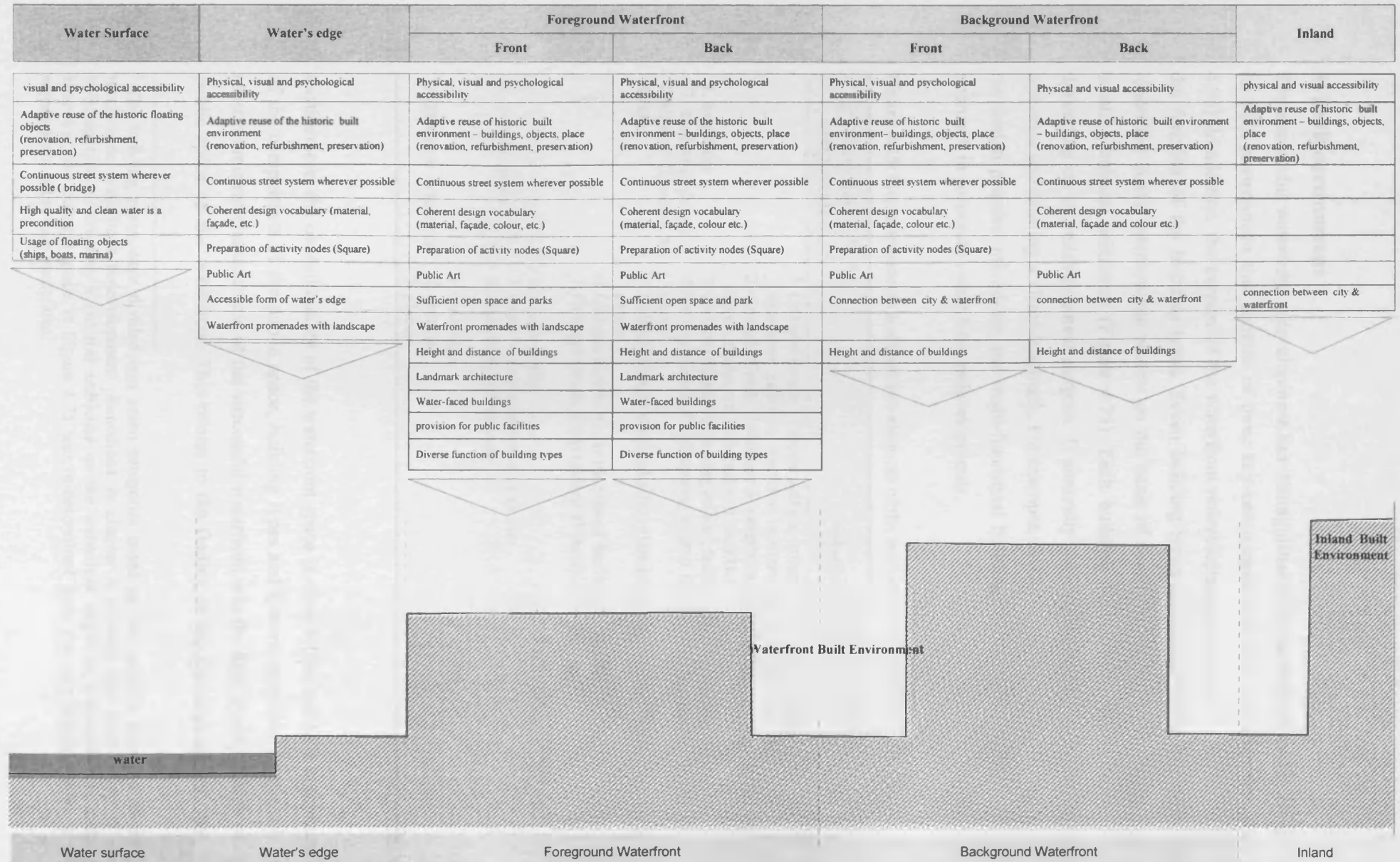
As already addressed in the analysis of the spatial character of the waterfront space in chapter 3 (Figure 3.19), the review of the waterfront redevelopments also identified the existence of five realms of waterfront space, formed by buildings, squares, streets (pedestrian and vehicle) and water in terms of use patterns. In addition, the review also identified that the composition of those elements directly influences the quality of the waterfront space and its gathering and use patterns.

Clear ‘physical division’ and ‘functional integration’ of the five realms of waterfront space was found in the successful waterfront redevelopments. Figure 4.73 and Figure 4.74 show the functional and physical characteristics of each realm, found, especially in case of successful waterfronts. In many respects, the successful waterfront relies on designing the physical division and functional integration of the five realms of the waterfront space because it is directly related to physical, visual and psychological accessibility to the water and the spatial structure of the built environment. Therefore, the five realms of the waterfront space are important elements to be considered for successful waterfront redevelopments.

**Figure 4.73: Physical and functional character of the five realms**

Realms		Physical Character	Functional characteristics
① <b>Water surface</b>		<ul style="list-style-type: none"> <li>▪ water surface itself</li> </ul>	<ul style="list-style-type: none"> <li>▪ Important fluid natural environment resource</li> <li>▪ place for eye catching floating objects (tall ships, submarines, boats, paddling boats, boats and water taxis)</li> <li>▪ using floating objects as leisure and entertainment facilities – maritime museum, restaurants and exhibitions</li> </ul>
② <b>Water's edge</b>		<ul style="list-style-type: none"> <li>▪ the vivid boundary where water and land meet.</li> </ul>	<ul style="list-style-type: none"> <li>▪ critical contact point to appreciate the waterscape</li> <li>▪ reserved for public waterfront promenade</li> <li>▪ major public space for relaxing and resting</li> </ul>
③ <b>Foreground waterfront</b>	front	<ul style="list-style-type: none"> <li>▪ the place where people visually and mentally feel a sense of waterscape</li> <li>▪ the place where people feel physically close to the waterfront</li> </ul>	<ul style="list-style-type: none"> <li>▪ major location of buildings –mixed use</li> <li>▪ Important buffer zone between water's edge and background waterfront</li> <li>▪ location for open space and aesthetic landscaping</li> </ul>
	back	<ul style="list-style-type: none"> <li>▪ includes major access roads which are parallel to the water's edge</li> </ul>	
④ <b>Background waterfront</b>	front	<ul style="list-style-type: none"> <li>▪ the place where the edge of the urban structure meets the foreground waterfront</li> <li>▪ visually and physically still accessible to the waterfront but less than the foreground waterfront area</li> </ul>	<ul style="list-style-type: none"> <li>▪ mainly buffer zones between inland and waterfront areas</li> <li>▪ important location for generating users during lunchtime and evening</li> <li>▪ provision of parking space for cars to create more accessibility to the waterfront</li> </ul>
	back	<ul style="list-style-type: none"> <li>▪ less accessible and visually interrupted</li> </ul>	
⑤ <b>Inland</b>		<ul style="list-style-type: none"> <li>▪ unlikely to have a sense of the waterfront</li> <li>▪ visual and physical accessibility are very limited</li> </ul>	<ul style="list-style-type: none"> <li>▪ location for generating users during lunchtime and evening</li> </ul>

**Figure 4.74:** Successful design factors in the five realms of the waterfront space found in the literature review of waterfront redevelopments



### 3) Built environment

The successful waterfront redevelopment has distinguishable characteristics in the design of its built environment that consists of three key components and their sub-elements (Figure 4.75). In addition, the purpose of the waterfront redevelopment patterns is strongly related to the function of the building types. Seven building types – Cultural Grade I to VII - are identified in the international review on the basis of contribution<sup>1</sup> of each building type in creating cultural ambience (Figure 4.75). Each building type functions in different ways depending on its redevelopment purpose. It generally plays an important role in generating activities and creating a visual landmark. For example, as shown in the successful 10 stages of the design process, mixed-use and multi-functional buildings types were a widely accepted approach in successful waterfront redevelopments.

**Figure 4.75:** Key components and their sub-elements of the built environment of the waterfront

Three key components	Sub-element
<b>1. building (7 building types – Cultural Grade I to VII)</b>	1. Cultural Grade I (major cultural infrastructure related facilities) - museums, galleries, maritime museums, concert hall and aquarium. 2. Cultural Grade II (leisure & entertainment related facilities) - paddling boats, cruise, and educational facilities. 3. Cultural Grade III (eating related facilities) - restaurants, cafes 4. Cultural Grade IV (shopping related facilities) - shopping centre, retail shops 5. Cultural Grade V (hospitality related facilities) – hotel, inn, conference centre. 6. Cultural Grade VI (work related facilities) - offices 7. Cultural Grade VII (residential facilities) - housing
<b>2. public space</b>	1. square (park) 2. street – pedestrians and vehicular 3. waterfront promenade
<b>3. Historic artefacts</b>	1. buildings, 2. objects 3. places

Furthermore, the overall quality of the waterfront space is often influenced by a combination of the components of the public space, building types and historic artefacts. Above all, the most prominent characteristic of the successful waterfront was the high quality design of the public space on the waterfront. This relates to the finding in the previous section that the

<sup>1</sup> The building types were divided into seven categories based on the author's literature review of world-wide waterfront redevelopment phenomena in chapter 4 although the contribution of each building type to creating a cultural ambience on the waterfront might be subjective and difficult. However, the cultural grade in Figure 4.75 was re-determined from the user questionnaires of 102 respondents in the case study area.

design process for the successful waterfronts is characterised by the waterfront space being perceived as a public domain from an early stage in the redevelopment. Regarding the design of this realm, the public domain on the waterfront was achieved through the creation of public squares and accessible pedestrian and vehicular networks, both along the waterfront and between the waterfront and the existing downtown area. A great deal of effort was given to the design of the outdoor space, which mainly consisted of squares, streets and waterfront promenades. In other words, people-oriented public spaces on the waterfront played a significant role in the long-term success of the waterfront redevelopments. To sum up, the design of buildings and their spatial integration with public space are essential components for successful waterfront redevelopments.

#### **4) Historic artefacts**

The literature review found that adaptive reuse of historic artefacts for uses such as cafés, offices, or residential and cultural facilities, gave a tremendous opportunity for revitalisation of the waterfront. In many ways, it was directly related to success, especially in commercial, leisure and cultural waterfronts. The three key elements of historic artefacts in the literature review, which were often converted into modern use, were as follows:

1. historic buildings – warehouses, power stations, industrial buildings
2. historic objects – anchors, ships, industrial structures (e.g. crane)
3. historic places – docks, piers, observational platforms

Much research has shown that historic artefacts are directly related to tourism and urban place making (Gordon, 1999). In addition, when the historic artefacts were strongly related to the water, the waterfront environment had a richness of meaning, and a strong sense of place. Various cases in the review demonstrated success through using these three kinds of historic artefact. It seems that a consideration of historic artefacts and their use is a typical post-modern waterfront redevelopment pattern. At the same time, they are important design elements to be considered for the creation of identity in the waterfront space.

#### **5) Events/programmes**

Finally, indoor and outdoor events were widely identified in successful waterfronts. From street performance to international events, they played a significant role in the vitality of the waterfront spaces. In addition, hosting an event such as a festival contributed to city marketing and creating place identity. In particular, water-related events, such as the Tall Ships exhibition in Baltimore Inner Harbour, provided an exotic experience and enhanced the experience of waterfront places. Thus, non-physical events/programmes in the indoor and

outdoor built environment become significant design elements to animate waterfront space. Above all, in the case of cultural waterfront redevelopments, the role of events/programmes is more important than other redevelopment patterns. In short, these five components are commonly identified in various waterfront redevelopment patterns. With the 10 design stages, they are important factors to be considered in the course of the redevelopment. Figure 4.76 demonstrates the evaluation of waterfronts on the basis of the existence of the five components.

### **4.3 Conclusions**

So far, based on the findings from the waterfront review, two important overarching factors are critical to the success of waterfront redevelopments – successful design process and the common design elements to be considered for success. The waterfront redevelopment phenomena has been evaluated on the basis for a ten stages of the successful design process and the five design components (Figure 4.72 and Figure 4.76).

Depending on the purpose of the redevelopment, the emphasis on each factor might be different. However, they provided a useful foundation to set up an analytical framework and criteria for assessing waterfront redevelopments. In addition, the evaluation of waterfront redevelopments provides a useful step in selecting a case study to test the research questions. The next chapter describes the selection of the case study area, the research methodology and the data collection process.

Figure 4.76: The evaluation of each waterfront in terms of design elements to be considered for successful waterfront redevelopment.

Legend																								
			■	Excellent	■	Good	■	Fair	□	Very Poor														
1. Urban waterfront form	accessibility		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	□	□		
	proximity		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	□	■		
2. Five realms of the waterfront	existence of the five realms		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	□	□			
	physical division of the five realms		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	□	□			
	functional integration of the five realms		■	□	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	□	□			
3. Built environment	7 building types		■	■	□	□	■	■	□	■	■	■	■	■	■	■	■	■	■	■				
	public space	Street	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	□			
		Square	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	□			
		Waterfront promenade	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	□			
4. Historic artefacts (into modern use)			■	□	■	■	■	■	■	■	■	■	■	■	■	■	■	■	□	□	□			
5. Events/programmes (n/a)																								

Source: Author (2003)

# **Chapter 5:**

## **Research methodology and data collection**

The aim of this chapter is to describe the methodological approach for this research. It includes the justification for the selection of the case study, the methodological framework, and the data collection process. In section 5.1, based on the findings from mapping waterfront redevelopment phenomena, cultural waterfront cases are selected and examined, and their characteristics compared to other types of waterfronts, showing a need for further investigation to understand the characteristics. In section 5.2, empirical evidence is presented to justify the selection of the chosen case study. In section 5.3, an overall analytical and methodological framework for the case study is discussed. In section 5.4, the scope of the case study is illustrated in a detailed manner. In addition, the main methodological approach for the case study – the multi-dimensional approach – is introduced. The multi-dimensional approach consists of five different methods of collecting data from the case study area: 1) a literature review (historical analysis), 2) morphological analysis, 3) user questionnaires, 4) stakeholder interviews, and 5) observational and filming work. Finally, in section 5.5, the limitations of the methodological approach are discussed.



## 5.1 Mapping cultural waterfronts

### 5.1.1 The characteristics of the cultural waterfront

In chapter 4, the literature review of worldwide waterfront redevelopments identified the successful design processes (Figure 4.61) and design elements (Figure 4.74). Although they provide a useful basis for assessing post-modern waterfront redevelopments, these are generic aspects found across different development approaches, whether primarily commercial, residential, cultural, environmental or historical schemes. As a result, it is difficult to determine: 1) the distinctive characteristics of primarily cultural waterfronts compared to others; 2) what kind of relationship the process and design components have in creating cultural waterfronts; 3) and what spatio-functional arrangements between the built environment and the water interfaces support cultural waterfronts.

Although there is a lack of scientific clarification concerning the notion of a cultural waterfront, like the notion of culture which was examined in section 2.1, the literature review in the previous chapter showed that there is a common consensus about the existence of cultural waterfronts which are identified as such by researchers, planners and urban designers (Figure 5.1).

**Figure 5.1 : Identified cultural waterfronts from the literature review on waterfront redevelopments**

<b>Time</b>	<b>Location</b>
1960s	Baltimore Inner Harbour
1970s	Boston waterfront ( Central Wharf)
1980s	Barcelona waterfront,
	Yokohama Minato Mirai21
	Genoa
	Sydney Darling Harbour
1990s	Cardiff Bay
	Osaka Cosmo waterfront
	Bilbao

What differences exist between cultural waterfronts and other waterfronts? The question can be answered by examining cultural waterfronts in terms of their design process and the design elements. In terms of the redevelopment process, Figure 5.2 illustrates how cultural waterfronts require both a more careful spatial structure in creating a built environment on the waterfront and a greater variety of functions to achieve a successful cultural ambience than any other form of redevelopment pattern. As examined in chapter 2, the notion of culture, the investigation of post-modern cultural geography, and post-modern waterfronts were characterised by elements such as mixture, diversity, value, a sense of place and identity, and socio-cultural demands. Due to this, creating cultural waterfronts have to meet multi-faceted

requirements, functions and complicated spatio-functional arrangements, accommodating various types of activity and users and diverse needs in changing society. As a result, it is necessary to consider all ten steps of the redevelopment stages in creating the cultural waterfront.

		Residential	Commercial	Historical	Environmental	Working & Transportation	Cultural
<b>■</b> very important <b>■</b> important <b>□</b> less important <b>□</b> not important	<b>Visioning the waterfront phase</b>		■	■	■		■
	<b>Stage 1. Visioning the waterfront environment as an important public domain</b>						
<b>Creating accessible infrastructure phase</b>	<b>Stage 2. Opening up the waterfront to the existing urban fabric</b>	■	■	■	■		■
	<b>Stage 3. Creating physical, visual and psychological accessibility to the water</b>	■	■	■	■	■	■
<b>Shaping the waterfront's built environment phase</b>	<b>Stage 4. Careful planning of the land use pattern – mixed-use and multi-functional</b>	□	■	■	■		■
	<b>Stage 5. Contextualism - considering the historical value of the waterfront and its existing built environment</b>	□		■	■	□	■
	<b>Stage 6. Priority for public open spaces and the waterfront promenade along the water's edge</b>		■	■	■		■
	<b>Stage 7. Designing the form and scale of the built environment whilst maximising the sense of the waterfront</b>		■	□	□	□	■
	<b>Stage 8. People and activity-oriented spatial composition</b>		■	□	□	□	■
<b>Animating the waterfront phase</b>	<b>Stage 9. Long term, step-by-step and piecemeal approach</b>	□		■	□	□	■
	<b>Stage 10. Continuous programming-Indoor and outdoor programme/events</b>	□	■	■	□	□	■

In terms of the design elements, evidence from the identified cultural waterfronts (Figure 5.1) demonstrated that successful cultural waterfronts require attention to every aspect of the five design elements (Figure 5.3) from chapter 4. Some categories, such as ‘urban waterfront form’ and ‘the five realms of waterfront space’ were commonly identified as successful factors in

different waterfront redevelopment patterns. However, cultural waterfronts have distinctive spatio-functional characteristics in the formation of waterfront spaces, especially in creating interfaces between the built environment and the water, the use of historic artefacts, and events/programmes.

For example, Darling Harbour, Minato Mirai 21 and Baltimore Inner Harbour were characterised by the unique spatial arrangements of ‘urban waterfront form’, ‘buildings’ for accommodating cultural activities, ‘users’ and ‘programmes and events’. Wide promenades, people-oriented open spaces, a concentration of cultural facilities, and a high sense of the waterfront were typical elements that were found in the cultural waterfronts. In addition, the careful composition of different building types and functional and physical integration in the ‘five realms of waterfront space’ were essential factors (Figure 4.73). Furthermore, unlike residential, historical, environmental, and commercial waterfronts, a cultural waterfront needs to project intangible socio-cultural demands into the physical waterfront space. Thus, it is characterised by public use, people and an activity-oriented spatial structure.

**Figure 5.3:** The characteristics of the cultural waterfronts in terms of their design elements

Legend		
<div></div>	very important	<div></div> Important
<div></div>	less important	<div></div> Not important

1.Urban waterfront form	Accessibility	
	Proximity to existing downtown	
2. Five realms of the waterfront	existence of the five realms	
	physical division of the five realms	
	functional integration of the five realms	
3.Built environment	Buildin g types	Major cultural infrastructure
		Leisure/entertainment-related
		Eating-related
		Shopping-related
		Hospitality-related
		working -related
		Residential-related
	Level of mixed use	
	public space	Street
		Square
		Waterfront promenade
4.Historical artefacts	buildings	
	places	
	objects	
5. Events /programmes		

Residential	Commercial	Historical	Environmental	Working & Transportation	Cultural
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### **5.1.2 The need for further investigation of cultural waterfronts**

In spite of the findings from the analysis of some cultural waterfronts, there is still a lack of empirical evidence to answer the main research questions: how can successful cultural waterfronts be created?; what factors constitute the cultural waterfront?; and what spatio-functional relationships exist between the built environment and water interfaces to generate opportunities for cultural activities and use? Thus, a systematic and in-depth examination of a specific case (or cases) is essential to answer the above questions.

## **5.2 The selection process of the case study and its justification**

The selection of the case study was based by two processes: 1) findings from the literature review on waterfront redevelopment around the world; and 2) field trips to potential case study areas which were identified during the literature review.

### **5.2.1 The selection after the literature review of waterfront redevelopments**

The international review in chapter 4 and Appendix C showed major waterfront redevelopments and on-going projects from the 1960s to the 2000s. The existence of cultural waterfronts was evident, even though there is still a lack of empirical evidence supporting a clear definition of the cultural waterfront. The pattern of creating cultural waterfronts also varied in terms of:

1. the scale of the waterfront (macro and micro scale),
2. the redevelopment period (long-term and short-term).
3. the types of waterfront spaces (canal, river and harbour)

For example, some cultural waterfronts were created by one iconic building, such as in Bilbao (the Guggenheim Museum) and Sydney (the Opera House), where a cultural ambience was highly concentrated in symbolic architecture on the waterfront. Others created the cultural ambience at a wider district level (a macro scale), e.g. Baltimore Inner Harbour, Yokohama Minato Mirai 21(YMM 21) and Darling Harbour. In addition, the successful cultural waterfronts were characterised by ‘long-term’ and ‘step-by-step’ approaches. Thus, the selection of potential case study areas needs to be based on macro-scale rather than on micro-scale cultural waterfronts and long-term periods rather than the short-term, because the macro-scale and long-term characteristics of the cultural waterfront will provide more empirical data

to investigate the relationship of the five components that constitute a cultural waterfront when conducting the case study. Based on these criteria, seven potential case study areas were found (Figure 5.4).

**Figure 5.4:** Seven potential case study areas to examine a cultural waterfront

<b>The potential case study areas</b>	<b>location/waterfront types</b>	<b>Field trip to the potential case study areas</b>
Baltimore Inner Harbour	America (1960s)/ Harbour	Visited
Cardiff Bay	The UK (1980s)/Harbour	Visited
Bristol Harbour	The UK (1990s)/Harbour+Canal	Visited
Yokohama Minato Mirai 21	Japan (1980s)/Harbour	Visited
Boston's Harbour	America (1960s)/Harbour	Visited
New York's South Street Seaport	America (1970s)/Harbour+River	Visited
Darling Harbour	Australia (1980s)/Harbour	Not visited

### 5.2.2 The selection of the case study through field trips

The selection of the case study was also decided as a result of field trips<sup>8</sup> to the potential case study areas in North America, Europe, and Asia during the early stages of this research. The field trip examined North American sites, where the first generation of successful waterfront redevelopments took place. The field trip visits in April 2002 included Washington D.C., Baltimore Inner Harbour, South Street Seaport and Battery Park City waterfronts in New York, and the Boston waterfront consisting of Foster's Wharf, Rowe's Wharf, India Wharf, Central Wharf, Long Wharf, Christopher Columbus Park, Commercial Wharf and the historic Charlestown waterfront.

For the Asian cases, YMM 21 and Tokyo Waterfront Sub-centre were visited. A trial observation was implemented at YMM 21 for two weeks in July 2002. Because of the redevelopment concept of an international cultural waterfront, from the beginning it had a strong sense of cultural ambience. Various cultural facilities, public open spaces, a waterfront promenade, entertainment facilities, an international convention centre, and hotels with shopping and eating places were identified during the field trip. An interview conducted with

<sup>8</sup> Based on findings from the literature review on waterfront redevelopments around the world, four case studies, located in different continents, were originally designed at an early stage of the research to look at the characteristics of the cultural waterfront, and also at how different cultural backgrounds redeveloped the cultural use of the waterfront. They were Baltimore Inner Harbour in America, Cardiff Bay in the UK Yokohama Minato Mirai 21 in Japan, and Sydney Darling Harbour in Australia. Visits were conducted to three of the case study areas and some interviews and an observation were undertaken. However, an interview (e.g. Norio Miyashita, the chief of Planning and Coordination of Minato Mirai 21 Corporation in August 2002), short observation results, and findings of the literature review demonstrated that they were all influenced by the Baltimore Inner Harbour in direct or indirect ways in terms of redevelopment concept, implementation, and design of the built environment. Because of this, the direction of the research changed to conduct one in-depth case study rather than four case studies in less depth.

the chief of Planning and Coordination of YMM 21 Corporation clearly demonstrated the vision of the cultural waterfront. For European waterfront redevelopments, the field trip mainly focused on the UK experience. The UK waterfront redevelopments were the most active in Europe after the success of the first generation waterfront redevelopments in North America (Meyer, 1999; Falk, 1993). Cardiff Harbour, Bristol Harbour, Brindleyplace, and London's South Bank were visited in 2002 and 2003. A literature review was carried out before each visit. Observation of the waterfronts was conducted for a day to look for a potential case study area. Of the Australian examples, according to the literature review, Darling Harbour was identified as the most successful cultural waterfront and a potential case study area. Despite its prominence as a world cultural waterfront, a visit to the site was deemed to be unnecessary as there was much information available in the literature. In addition, the redevelopment of Darling Harbour was directly influenced by Baltimore Inner Harbour redevelopment in terms of concept and approach. In many respects, in terms of the waterfront's built environment, Darling Harbour has a similar spatio-functional setting to Baltimore.

The outcome of the field trips confirmed the importance of Baltimore Inner Harbour in four ways. Firstly, as the literature review on the potential case study areas shows, the majority of the literature introduced Baltimore Inner Harbour as the first successful waterfront redevelopment model. Secondly, Baltimore Inner Harbour had a direct and indirect impact on many waterfront redevelopments around the world in terms of its redevelopment process, design scheme, and planning process (Figure 5.5). For example, the notion of the 'festive marketplace' at the Harbourplace in Baltimore was used everywhere as a means to revitalise waterfront spaces, even inner city spaces. In addition, the management, programmes and design of the Aquarium in the harbour has been copied world-wide, for example Darling Harbour in Australia, and Osaka waterfront in Japan (Figure 4.68). Furthermore, successful private and public partnerships were often introduced to other waterfront redevelopments. Thirdly, from the literature review and from the result of interviews conducted in potential case study areas during the field trip, the importance of Baltimore Inner Harbour as a benchmark for redevelopment became evident. For example, the chief of Planning and Coordination of YMM 21 Corporation mentioned that he visited Baltimore Inner Harbour and adopted many of its design concepts. He continued that many other waterfront redevelopments in Japan had done the same.

Finally, an observation made on site at Baltimore Inner Harbour in April 2002 suggested that this was the most convincing example of cultural waterfront development. This very positive impression was based on several things:

- visitor's numbers<sup>9</sup>
- the physical setting of the built environment/water interfaces
- the abundance of historical artefacts
- the existence of the five realms of the waterfront
- a mixture of different building types
- the robustness of events and activities taking place

Among the possible case studies, Baltimore Inner Harbour was the best candidate for a waterfront redevelopment model as confirmed by scholars, researchers and practitioners. In particular, under consistent leadership, the redevelopment process has transformed this once derelict waterfront into a world-class cultural destination, which is symbolised by the term 'Baltimore Syndrome'. Because of this unprecedented success, its redevelopment approach has been reflected in many other waterfront redevelopment projects.

#### **5.2.2.1 Baltimore Inner Harbour as the case study**

The Baltimore Inner Harbour waterfront redevelopment is a pioneering example of waterfront redevelopment in the 1960s (Urban Land Institute, 1983; Hoyle et al, 1988; Law, 1988; Torre, 1989; Keith, 1991; Falk, 1986, 1992, 1993, 1993a; Kelly & Lewis, 1992; Hall, 1993; Green, 1993; White et al, 1993; Breen & Rigby, 1994; Mambro, 1993; Bruttomesso, 1993; Vallega, 1993; Colquhoun, 1995; Jauhiainen, 1995; Malone, 1996; Miller, 1998; Meyer, 1999; Marshall, 2001a; Shaw, 2001; Gastil, 2003) in terms of the process, design elements, partnerships and management (Figure 5.5). According to Millspaugh (2001: 75-76):

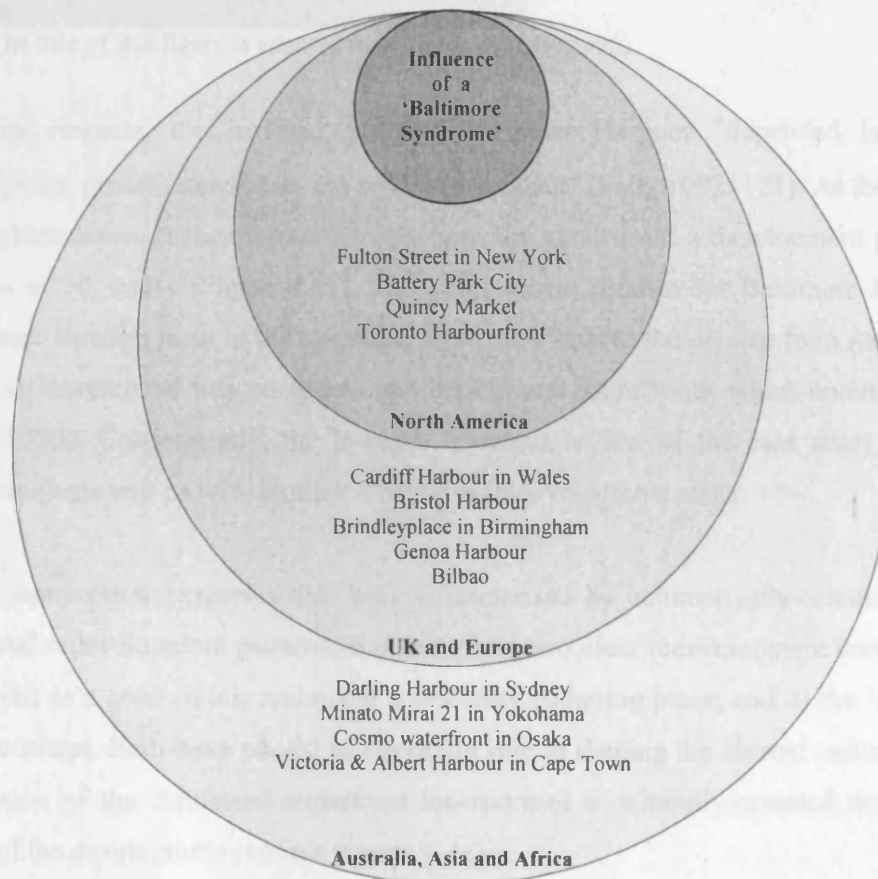
The Inner Harbour redevelopment program has received more than forty national or international awards for planning design and implementation. Baltimore was named one of the top growth markets in the US by Advertising Age magazine, selected as an All American City by the National Municipal League, and singled out as the city with the best urban revitalisation program by the International Federation for Housing and Planning. An institute award from the American Institute of Architects said it all in 1984 when it described the Inner Harbour as "one of the supreme achievements of large-scale urban design and development in US history". In 1991, the international Waterfront Centre simply listed the Inner Harbour as "one of the top 10 waterfront places in the world". (Millspaugh, 2001: 75-76).

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<sup>9</sup> The estimate of the number of visitors may be different depending on the season because the use patterns of waterfronts rely on weather conditions. The author's observation of the number of visitors was conducted during the following periods: April (Baltimore Inner Harbour, Fulton Street in New York, and Boston Harbour), May (Bristol Harbour), June (Cardiff Harbour in Wales) and July (YMM 21, Tokyo Waterfront Sub-centre). In general, peak time on the waterfronts is during the summer, but the Baltimore Inner Harbour waterfront was full of people along the promenade when the observation was carried out in April. Observation of the rest of the waterfronts during the field trip was conducted during summer peak time. The author's impression was that Baltimore Inner Harbour gathered more people than the others, even though the observation took place in April.

Baltimore Inner Harbour provides a good example of the stages in the transformation process to create the cultural waterfront, starting with a derelict waterfront area in the 1950s, the local waterfront as a public domain (Green, 1993) in the 1960s and 1970s; a national attraction in the late 1970s and 1980s; and an international cultural waterfront in the 1980s, 1990s and 2000s, attracting an average 13 million visitors per year (Baltimore Area Convention and Association, 2002). In addition, the transformation of the cultural waterfront continues further down the Inner Harbour. Because of the long-term and step-by-step process of the redevelopment, it is possible to look at the factors that comprise the cultural waterfront, and how the transformation of the spatial arrangements of the built environment accommodates the cultural uses and activities. First of all, it provides a valuable opportunity to look at how the water and built environment interface with each other over time to create the current waterfront environment.

**Figure 5.5:** The influence of the 'Baltimore Syndrome' on other waterfront redevelopments



Baltimore Inner Harbour illustrates the post-modern/post-industrial characteristics of the cultural waterfront (Harvey, 1989a; Norcliff et al, 1996). This phenomenon is an on-going process that began in the derelict waterfront and progressed through stages to the post-modern condition (Figure 5.6). As a result, through an investigation of the cultural waterfront, it is



possible to identify through the development of physical waterfront spaces the notion of a cultural public domain in the post-modern era.

**Figure 5.6:** Scarlett Place in Baltimore brings together historical preservation (the nineteenth-century Scarlett Seed Warehouse is incorporated in the far left-hand corner) and the postmodern urge for quotation, in this case from a Mediterranean hilltop village (note the modernistic public housing in the background)



**Note:** The title of this figure is adopted from Harvey (1989a, p95)

In many respects, the success of Baltimore Inner Harbour “depended largely on the development process rather than the particular product” (Falk, 1992: 121). As the international review has shown, successful waterfronts typically result from a development process which consists of 10 stages (Figure 4.61). The development process for Baltimore Inner Harbour progressed through most of the ten stages from the 1960s to the present for a long time period and in an incremental way compared to other cultural waterfronts, which commenced mainly in the 1980s. Consequently, the in-depth literature review of the case study area and the survey analysis will provide explicit data for each development stage.

Unlike many other examples that were characterised by commercially-oriented and mono-functional redevelopment patterns, Baltimore had two clear redevelopment concepts – 1) the waterfront as a great public realm and community gathering place, and 2) the ‘festive market place’ concept. Both have played an important role in shaping the current cultural waterfront. The vision of the Baltimore waterfront incorporated a culturally-oriented design from the outset of the development process (Figure 6.11).

The waterfront has the five distinctive components – 1) urban waterfront form, 2) built environment, 3) events/programmes, 4) users and 5) water – which were identified as key components comprising the cultural waterfront. In addition, there is also a clear spatial division of waterfront spaces, a five realms of waterfront space (Figure 4.73) with their interdependent functions in each realm. Using these two notions, it is possible to examine the

physical structure of the waterfront - from the built environment to the water interfaces – assessing its contribution to the formation of the cultural waterfront and its support of cultural use.

The inclusion of various types of buildings from Cultural Grade I to VII (Figure 4.75) - such as aquarium, convention centre, hotel, adaptive reuse of historical buildings, museum, science centre, maritime museum, office, residence, restaurant/cafe, shopping centre etc – led to the success of the development. The success of each building created a global model in terms of indoor programme/events, management, design of the buildings and the number of visitors. For example, the National Aquarium provides a prototypical example in terms of architectural design, exhibition venue and management. Harbourplace is another example because of its function. It attracts millions of visitors every year since opening, and has been compared to Disney World (Meyer, 1999). Thus, Baltimore provides useful empirical data on how the composition of building types actually contributes to the creation and success of the cultural waterfront.

Finally, Baltimore Inner Harbour illustrates a continuously evolving cultural waterfront and provides an example for future waterfront redevelopment (Kelly & Lewis, 1992). In 2003, “the waterfront experienced both the highest level of capital investment (approximately \$ 1billion) and the smallest job loss of any downtown neighbourhood” (Baltimore Downtown Partnership, 2003: 19), with new construction consisting of: The Pier IV building for entertainment and restaurants; the expansion of the \$112 million National Aquarium at Pier 3; the New Visitor Centre along Light Street waterfront with its panoramic water view; and a new addition to the Maryland Science Centre. In addition, construction of new office buildings is taking place. All these redevelopments are taking place in the case study area. Although a strong commercial-driven redevelopment approach is evident, the cultural image of the waterfront is still dominant and evolving.

#### **5.2.2.2 Why one case study**

The reason for the selection of only one case study is explained in the following two points. Firstly, as mentioned in the previous section (Figure 5.5), Baltimore Inner Harbour redevelopment has directly or indirectly influenced most other waterfront redevelopments through its success (Urban Land Institute, 1983; Falk, 1986, 1992, 1993, 1993a, 1995; Bruttomesso, 1993; Breen & Rigby, 1994, 1996; Jones, 1999; Meyer, 1999; Marshall, 2001; The Waterfront Centre, 1999). In the words of Falk (1992: 120):

The real potential of waterside redevelopment was first discovered in the USA. Despite a tendency in the past for North America to adopt European ideas, with port areas throughout the world rationalising their activities, and with the widespread opportunities for releasing land for development, American ideas [Baltimore Inner Harbour] are being exported to Europe and other areas. A substantial number of grandiose schemes have resulted in North America, Europe and elsewhere, many of which look surprisingly alike (Falk, 1992: 120).

The Waterfront Centre (2002) in Washington D.C. also mentioned in its Urban Waterfront Manifesto that the adoption of an earlier successful example as a model resulted in the virtual replication of the design. The Manifesto insisted on the importance of the reflection of local characteristics in its waterfront redevelopment process.

With this growing popularity comes a tendency by some to look for the quick solution, to adopt a formula that may have worked somewhere else. In the 1980's, it was the 'festive market place' fad [in Baltimore Inner Harbour]. In the 1990's, it is the "urban entertainment district" and/or stadiums (The Waterfront Centre, 2002).

In particular, Darling Harbour, Cardiff Bay, YMM 21, the Victoria and Albert in Cape Town, and Fulton Street in New York were all directly influenced by Baltimore Inner Harbour in terms of their development approach. The main influence of the 'Baltimore Syndrome' can be itemised as follows:

- political leadership and management
- private/public partnerships with consistent political leadership
- long-term, incremental and step-by-step development approach
- high quality design of the physical built environment between buildings and water
- mixed-use and multi-function buildings
- application of the notion of the 'festive marketplace'
- public use-oriented redevelopment approach
- design and management of the Baltimore National Aquarium
- organisation of water-related events and programmes

As a result, similarities between many cultural waterfronts were identified in the literature review. Thus, an in-depth examination of Baltimore Inner Harbour might reveal much about the characteristics of the other cultural waterfronts, although they are located within different cultural contexts and geographical locations.

Secondly, as discussed in the previous section 5.1, the characteristics of the cultural waterfront seem to require more spatio-functional considerations in creating the interrelationships of the five components that make the cultural waterfront than any other waterfront redevelopment types. In other words, to analyse the cultural waterfront requires a sophisticated research

methodology to investigate the relationships of each component. Consequently, a multi-dimensional approach (see section 5.3.1 for details) is necessary to collect the different types of data embedded in cultural waterfronts. Because of this, the application of a multiple methodological approach into one case study area with an in-depth examination will collect detailed and consistent data from the same source to achieve the research aim, rather than from many cases in less depth. In addition, around 40 years of the redevelopment process of the Inner Harbour as the first generation of waterfront redevelopment will provide a wide spectrum of physical and non-physical data compared to other which mainly started from the 1980s.

## **5.3 A methodological approach and analytical framework**

### **5.3.1. The need for and notion of a multi-dimensional approach**

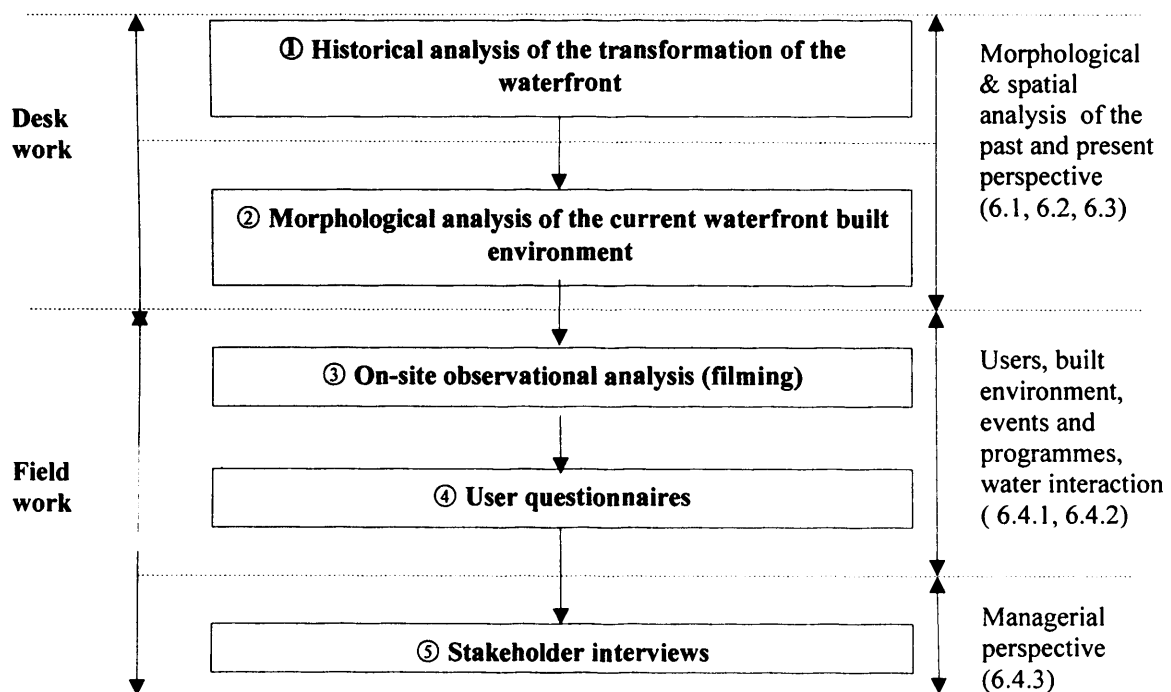
The need for a multi-dimensional approach can be explained by the complexity of analyzing the tangible and intangible components of the five factors – urban waterfront form, built environment, users, water and events/program - that make the cultural waterfront. To analyse the five components, it is necessary to adopt different methodological approaches because they make a contribution to creating the cultural waterfront in different ways.

For example, analysing how ‘urban waterfront form’ is related to creating the cultural waterfront needs a morphological examination of the waterfront and the existing urban fabric through a literature review of the area. However, in the case of analysing ‘users’ of the cultural waterfront, it is important to look at how they perceive and experience the cultural waterfront. To do this, qualitative analysis, such as observation and user questionnaires, is essential to explore their mental map and behaviour patterns. In addition, analysing the interaction of each component, such as between the built environment and the water; between users and the water; between events and users; and between built environment and the water requires even more complicated and combined methods.

Furthermore, the five components are commonly identified with other development patterns but they have a different physical composition, occupation level of different building types and different functions, depending on the development pattern. As a result, to look at what uniquely makes a cultural waterfront and what the relationship of the five components making the culturally oriented waterfront is, it is necessary to investigate each component throughout different methodological approaches.

Thus, the concept of a multi-dimensional approach combines of five different methods to analyse the five components that make the cultural waterfront: 1) a historical analysis for ‘urban waterfront form’; 2) a morphological analysis for the current ‘built environment’ of the waterfront; 3) an observational analysis for users’ use patterns and their interactions with the built environment, the water, and events and programmes; 4) user questionnaires for their perception of the cultural waterfront; and 5) stakeholder interviews who have been/were involved in creating the cultural waterfront for all five components. The five steps of this analysis of the case study area will bring together different layers of data, providing a broad understanding of the cultural waterfront (Figure 5.7).

**Figure 5.7:** Five analytical processes of the multi-dimensional approach



Source: Author's model (2004)

### 5.3.2 An analytical framework for the case study

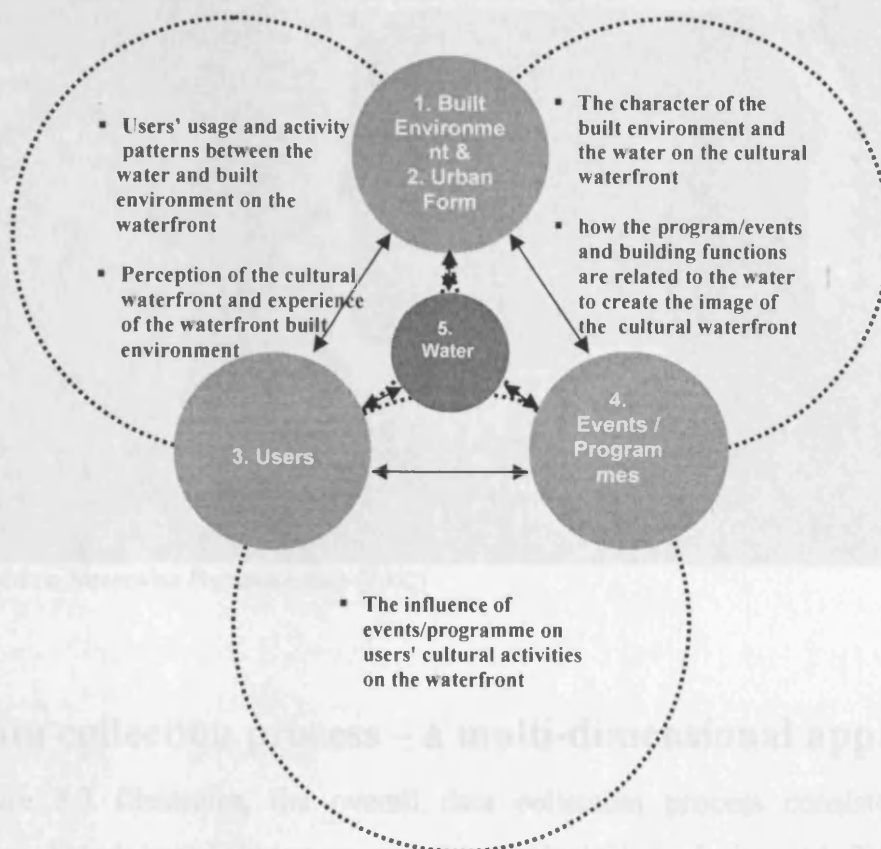
Based on the multi-dimensional approach, the analytical framework for the case study consists of a two-tier structure:

1. examination of individual characteristics of the five components
2. examination of the interaction between each of the five components

Figure 5.8 and the diagram in the table demonstrate the overall analytical framework, the collection of empirical data with applied methods, and possible outcomes.

**Figure 5.8:** The analytical framework for the examination of the five factors in the case study area.

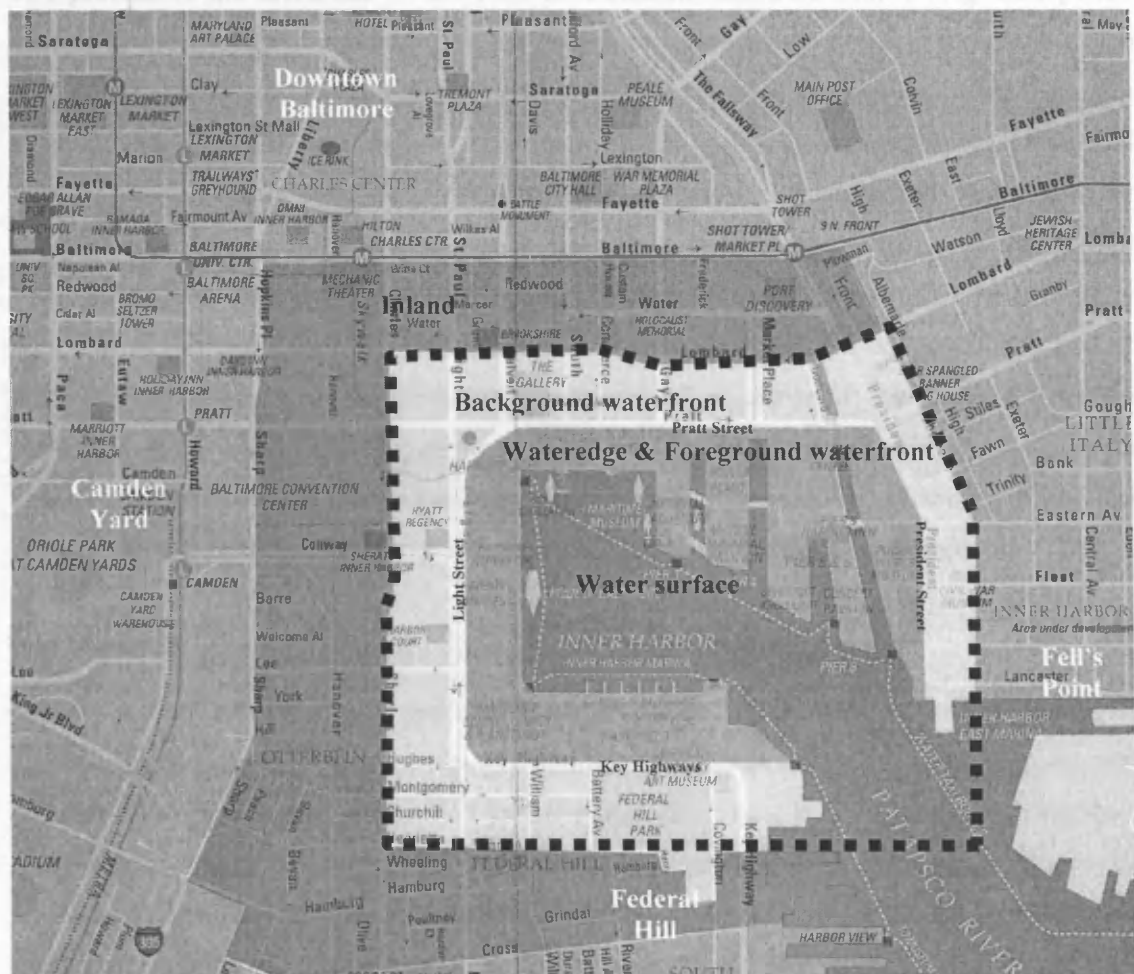
	Five factors that constitute the cultural waterfront				
	1. urban waterfront form	2. built environment	3. users	4. water	5. events/program
Investigation areas	<ul style="list-style-type: none"> <li>The urban form between the waterfront and the existing downtown</li> </ul>	<ul style="list-style-type: none"> <li>Cultural facilities from CG I to VII</li> <li>The five realms of the waterfront</li> <li>Open Space</li> <li>Historical artefacts</li> <li>Texture, grain and patterns</li> </ul>	<ul style="list-style-type: none"> <li>Users' activity patterns</li> <li>Users' interactions with the rest of the five factors</li> </ul>	<ul style="list-style-type: none"> <li>Users' perception of the water</li> <li>Physical form of the water's edge and its characteristics</li> </ul>	<ul style="list-style-type: none"> <li>types of event</li> <li>the function of events/program</li> <li>relationship between events and users; events/spatial structure</li> </ul>
Research methods	<ul style="list-style-type: none"> <li>Literature review on historical and pictorial analysis for transformation of the area</li> </ul>	<ul style="list-style-type: none"> <li>In-depth morphological analysis of the built environment and the water interfaces</li> </ul>	<ul style="list-style-type: none"> <li>User questionnaires</li> <li>Observation</li> </ul>	<ul style="list-style-type: none"> <li>Morphological analysis of the water and the built environment</li> <li>Observational analysis of interactions with users, events</li> </ul>	<ul style="list-style-type: none"> <li>Observational analysis</li> <li>User questionnaires</li> </ul>
Stakeholder interviews					
Possible outcome (data)	<ul style="list-style-type: none"> <li>Interrelationship between the waterfront and downtown</li> </ul>	<ul style="list-style-type: none"> <li>Spatial and functional role of the built environment in creating the cultural waterfront</li> <li>Characteristics of the physical structure between the built environment and the water on the cultural waterfront</li> </ul>	<ul style="list-style-type: none"> <li>Users' perception of about the cultural waterfront</li> <li>Users' activity patterns in the built environment and interactions with water, events and programmes</li> </ul>	<ul style="list-style-type: none"> <li>The function of the water's existence in creating a cultural sense of the waterfront</li> <li>The physical relationship between the water and the built environment</li> </ul>	<ul style="list-style-type: none"> <li>Role of events/programmes in creating the image of the waterfront</li> <li>Relationship between events, water, users and the built environment</li> </ul>



### 5.3.3 The scope of the case study area

The boundary of the case study area was drawn based on an investigation of the notion and scope of the waterfront which were already examined in chapter 3. The physical, visual and psychological proximity of the water was a key factor in deciding what the scope of the waterfront was. In addition, according to the finding in chapter 3 (Figure 3.20), the spatial characteristics of the waterfront space can be divided into five realms – water surface, water's edge, foreground waterfront, background waterfront, and inland realm. On the basis of this, it was possible to divide the case study area into five realms (Figure 5.9).

**Figure 5.9:** The boundary of the case study area which is divided into the five realms



Note: Based on Streetwise Baltimore map (2002)

### 5.4 Data collection process – a multi-dimensional approach

As Figure 5.7 illustrates, the overall data collection process consisted of two processes: 1) desk-based literature and morphological analysis, and 2) field work introducing a variety of methodological approaches.

### **5.4.1 Data collection through the literature review**

The data collection through the literature review of the case study area consists of three parts. First, it investigates the historical transformation of the area with pictorial illustration in order to demonstrate intangible political and economic influences and their outcomes. Second, the review examines the morphological transformation of the case study area and its surroundings. Finally, the three components of the current built environment – buildings, open spaces, and historic artifacts – are examined.

#### **5.4.1.1 A historical, morphological and pictorial analysis**

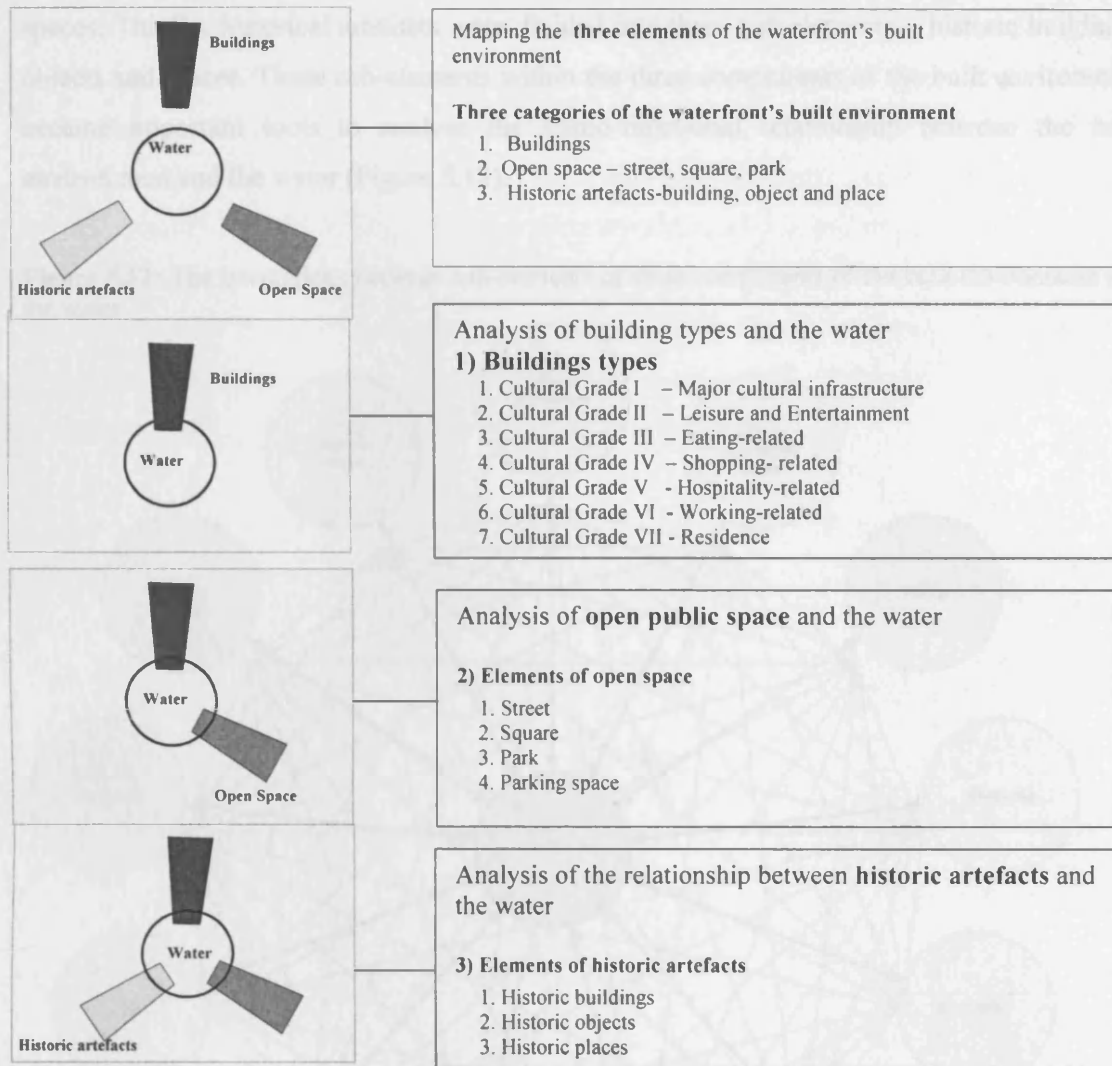
The process of the formation of the built environment happened over a long time period starting in the 1960s and continuing to the present day. Behind the physical formation of the built environment, political and economic events and influences become important factors in shaping the direction and nature of urban growth. Thus, investigating the historical transformation of the case study area provides not only a fundamental foundation for conducting a multi-dimensional approach but also a useful understanding of the current waterfront space. The historic analysis focuses mainly on the transformation of the case study area – a mainly pictorial and morphological transformation - in the context of the city of Baltimore. In addition, it examines the transformation of the built environment from the beginning of the urban renewal plan for the waterfront in 1963 to the present, focusing on the spatial structures between the land and the water. This facilitates an understanding of how the current built environment and water interface, the hinterland is shaped over time.

#### **5.4.1.2 Mapping the current waterfront's built environment**

During a long redevelopment process from the 1960s to the present, critical concepts, processes and elements, which have played an important role in creating the current successful cultural waterfront, have been applied to the waterfront. Thus, it is important to investigate these factors, related to creating the current cultural waterfront, in the morphological analysis which examines the transformation of the built environment focusing on the buildings and their influence on the spatial structure of the waterfront. The investigation of the built environment surrounding the waterfront examines three components of the built environment and the spatial arrangement between the built environment and the water (Figure 5.10). The investigation of the relationship between these three elements and the water will lead to the compilation of the baseline data of the built environment.

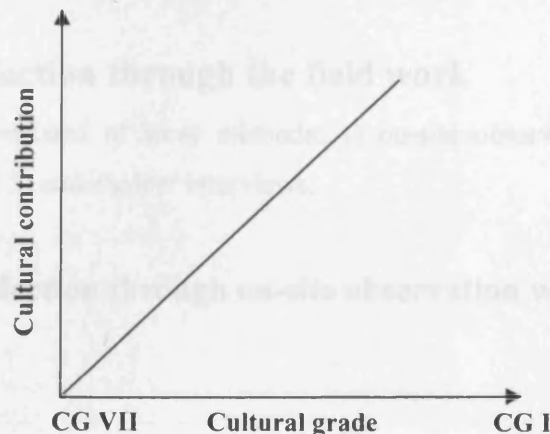


**Figure 5.10:** Analytical framework for the waterfront's built environment in the case study area



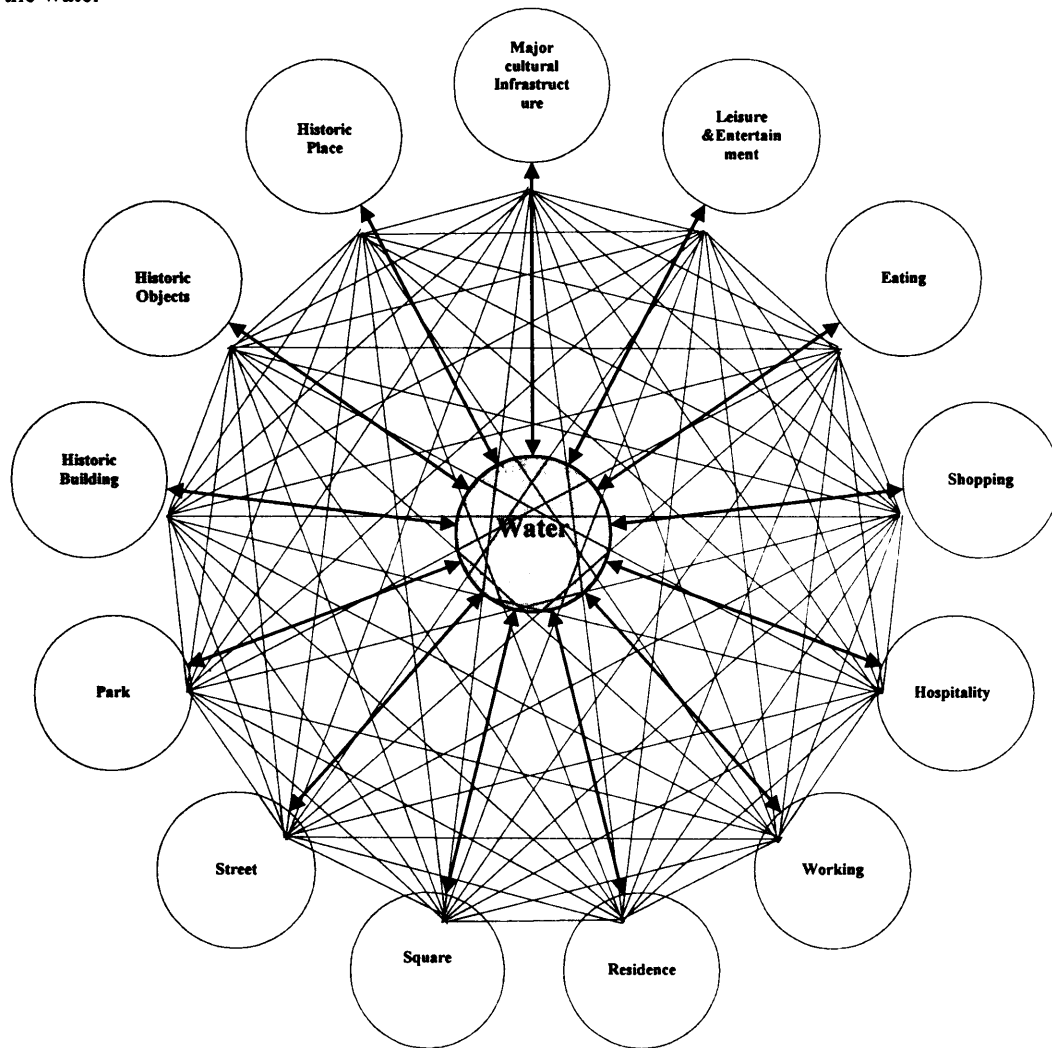
Firstly, regarding buildings, seven types were identified in chapter 4, and categorised as Cultural Grade I (CGI) to Cultural Grade VII (CG VII) buildings (Figure 4.75), based on the contribution of each building type in generating the cultural ambience (Figure 5.11).

**Figure 5.11:** The relationship between cultural grade and cultural contribution



Secondly, open spaces were divided into four components: streets, squares, parks and parking spaces. Thirdly, historical artefacts were divided into three sub-elements – historic buildings, objects and places. These sub-elements within the three components of the built environment became important tools to analyse the spatio-functional relationship between the built environment and the water (Figure 5.12).

**Figure 5.12:** The interactions between sub-elements of three components of the built environment and the water



## 5.4.2 Data collection through the field work

The field work consisted of three methods: 1) on-site observation with filming; 2) user questionnaires; and 3) stakeholder interviews.

### 5.4.2.1 Data collection through on-site observation with filming

#### Rationale

On-site observation with filming was conducted after the literature review which had provided data covering the physical built environment. Analyzing the cultural waterfront required an in-depth understanding of interactions between users and the rest of the five components that make the cultural ambience. The purpose of the observation and filming was to look at: 1) the spatio-functional interface between the users, the built environment, the water, and the events/programme; 2) how they integrated into the overall cultural waterfront; and 3) how they generated opportunities for cultural uses and activities. Along with an examination of the interrelationship of these elements, the time and weather dimensions were also considered because the use pattern of waterfront spaces varied depending on the time of day, weekday or weekend, weather conditions and season of the year (Figure 5.13).

**Figure 5.13:** Three major dimensions to be considered for observation with filming

Observation dimensions	Observation elements
① <b>users, built environment, water and events/program</b>	<ul style="list-style-type: none"> <li>▪ users</li> <li>▪ users' activity in the physical setting of the built environment</li> <li>▪ users' activity in the spatial setting between the built environment and the water</li> <li>▪ users' activity during events</li> <li>▪ event on/off and the scale of events</li> </ul>
② <b>time</b>	<ul style="list-style-type: none"> <li>▪ daytime</li> <li>▪ night time</li> <li>▪ weekday</li> <li>▪ weekend</li> <li>▪ season (summer)</li> </ul>
③ <b>weather</b>	<ul style="list-style-type: none"> <li>▪ weather conditions</li> </ul>

## Method

Observation and filming was conducted during the summer between 16<sup>th</sup> June and 20<sup>th</sup> July 2004<sup>10</sup> as the time when the waterfront receives its most heavy use. In addition, the weather conditions during this period were good. Furthermore, one of the biggest events on the waterfront The Fourth July Sailabration took place between 30<sup>th</sup> June and 4<sup>th</sup> July 2005. As a result, this period provided the survey with ample qualitative data, showing how users interacted with the built environment, events/programmes and the water.

## Observation precincts

To collect data effectively from the observations, the case study area was divided into four precincts:

1. Harbourplace Precincts (HP)
2. Aquarium Precincts (AP)

<sup>10</sup> The case area was visited twice. The first visit was for a pilot study and morphological analysis of the Baltimore Inner Harbour waterfront in April 2002 as part of the case study selection process. The second visit was to conduct the field work, consisting of observation, interview and questionnaire.

3. Science Centre Precincts (SP)
4. Pier 6 Concert Pavilion Precincts(CP)

The criteria for dividing the four precincts was based on key buildings<sup>11</sup> that acted as critical generators of activities throughout the day. Each precinct has key sections which straddled the five realms of the waterfront space. The location of the sections was also determined by their importance in creating the overall image of the cultural waterfront. Eleven key observational sections were identified ranging through the four precincts (Figure 5.14 and Figure 6.59). The observation and filming of the four clusters was undertaken twice on a weekday and weekend respectively, and once on the event day - The Fourth of July Sailabration between 30 June and 4 July when the weather conditions were good and sunny (Figure 5.15).

As Figure 5.15 shows, the observation and filming was carried out from morning to evening to monitor the change in use patterns on the waterfront throughout the day. There were six one-hour observation periods for each precinct, between 8am and 8pm each day. Each precinct had three observational sections. Each observational section was observed for 60 minutes including 10 minutes of filming. As a result, three sections in one precinct were intensively observed six times per day. In addition, during the free time between observation slots, other activities took place such as photographing the areas, and conducting the user questionnaires.

Because the waterfront's built environment was a complicated type of spatio-functional structure in 'five factors that constitute the cultural waterfront', the observation and filming survey was composed of a five tier process in order to collect the detailed empirical data. The need for five tiers in the survey demonstrated the interaction of the five factors that made the cultural waterfront:

1. observation and filming
2. overview snapshot of each section
3. detailed snapshot of each of the 'five realms of the waterfront space'
4. walking tour to enable the preparation of a mental map
5. detailed description of each section in the cluster

---

<sup>11</sup> The decision to group four precincts was based on observations of the waterfront during the first field trip in 2002.

**Figure 5.14:** Four observational precincts and the location of sections in the cluster

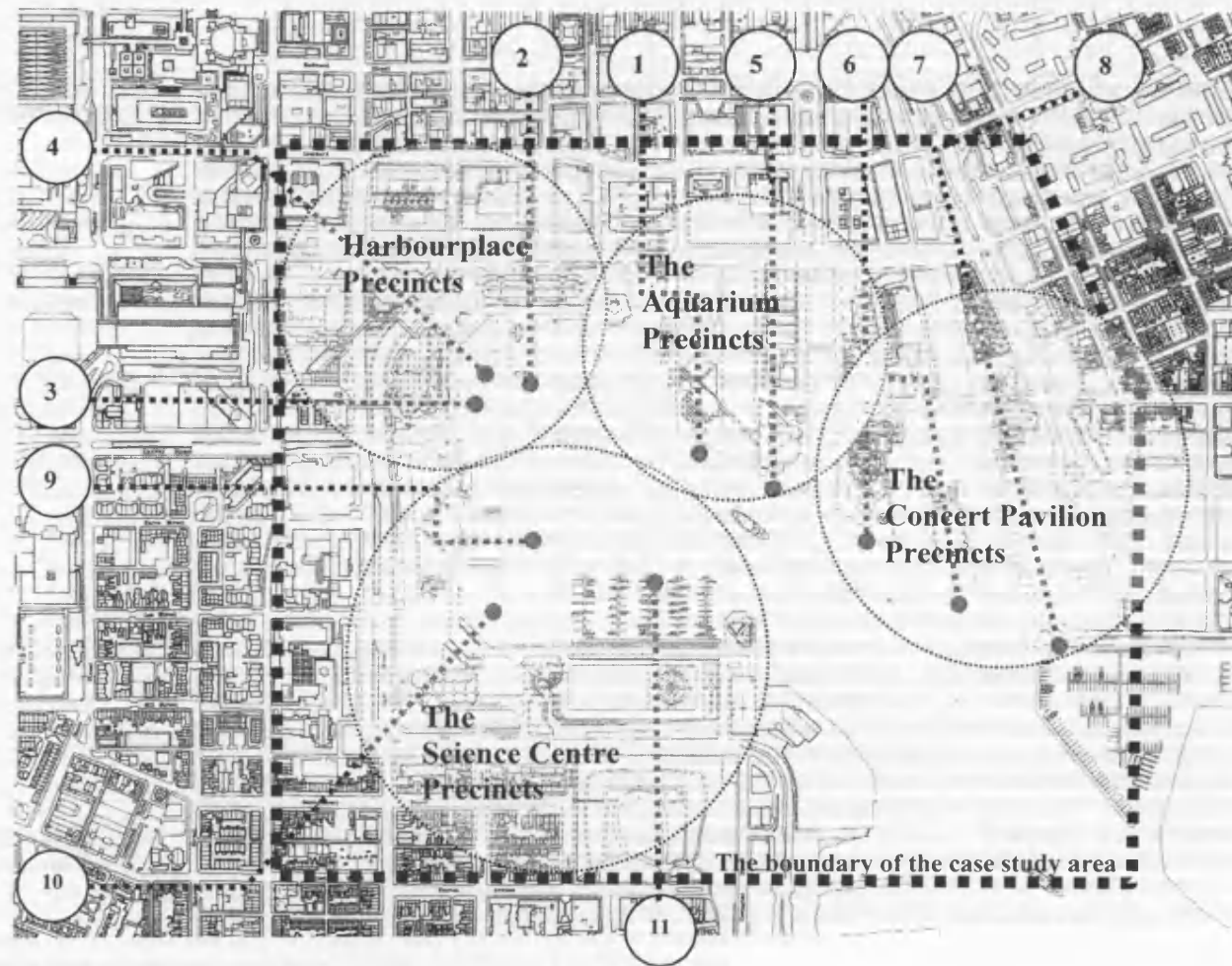


Figure 5.15: The field work schedule for the observation with filming and user questionnaires

10 minutes filming during the observation

Time slot for the observation

conducting the user questionnaires and walking experience of the observation precinct

Observation Area	Date (2004)		Timeline												Weather			
			8 - 9	9 - 10	10 - 11	11 - 12	12 - 13	13 - 14	14 - 15	15 - 16	16 - 17	17 - 18	18 - 19	19 - 20				
Preliminary visit	June 15	Tuesday																
Preliminary visit	16	Wednesday																
Searching for observation point	17	Thursday																
Searching for observation point	18	Friday																
Observation (HP)	19	Saturday													Overall	Morning	Noon	Afternoon
Observation (AP)	20	Sunday													Sunny	23.3	27.8	26.1
Questionnaire	21	Monday													Sunny	16.7	20.6	22.8
Observation (HP)	22	Tuesday													Sunny	19.4	24.4	25.0
Observation (AP)	23	Wednesday													Sunny	23.3	28.3	24.4
Observation (SP)	24	Thursday													Sunny	23.3	23.3	23.9
Observation (CP)	25	Friday													Sunny	22.2	28.3	28.3
Observation (SP)	26	Saturday													Sunny	23.3	27.8	20.0
Observation (CP)	27	Sunday													Sunny	22.8	25.0	26.1
Questionnaire	28	Monday													Sunny	21.1	25.0	26.1
Questionnaire	29	Tuesday													Sunny	22.2	26.7	25.6
Observation (HP)	30	Wednesday													Sunny	19.4	23.3	25.6
Questionnaire	July 1	Thursday													Sunny	23.3	26.7	27.2
Observation (AP)	2	Friday													Sunny	22.2	28.3	29.4
Observation (SP)	3	Saturday													Sunny	25.6	31.1	30.6
Observation (CP)	4	Sunday													Sunny	23.9	27.8	29.4
Observation (HP)	5	Monday													Sunny	23.9	26.1	25.6
Observation (AP)	6	Tuesday													Sunny	26.1	32.8	27.8
Observation (SP)	7	Wednesday													Sunny	25.0	28.3	31.1
Observation (CP)	8	Thursday													cloudy	27.2	31.7	21.0
Questionnaire	9	Friday													Sunny	23.9	28.3	30.0
Observation (HP)	10	Saturday													Sunny	24.4	27.8	29.4
Observation (AP)	11	Sunday													Sunny	23.9	27.8	28.3
Questionnaire	12	Monday													Sunny	25.6	28.3	29.4
Questionnaire	13	Tuesday													Sunny	25.0	27.8	28.3
Questionnaire	14	Wednesday													Sunny	23.3	26.7	26.7
Questionnaire	15	Thursday													Sunny	22.8	29.4	25.0
Questionnaire	16	Friday													Sunny	23.9	26.1	27.2
Observation (SP)	17	Saturday													Sunny	23.9	27.8	27.8
Observation (CP)	18	Sunday													Sunny	23.9	27.8	27.2
Questionnaire	19	Monday													Sunny	20.6	21.1	22.8
Questionnaire	20	Tuesday													Sunny	21.7	26.1	27.8

Note: 1. HP (Harbourplace Precinct), AP (Aquarium Precinct), SP (Science Centre Precinct), CP (Concert Pavilion Precinct)

2. The temperature of morning, noon and afternoon measured at 8:54AM, 12:54PM and 5:54PM respectively.

3. Detailed temperatures were found at [www.wunderground.com](http://www.wunderground.com) during the field work

4. In general, weather conditions during the survey were very sunny and typical summer weather, but there was cloud and rain in the late afternoon for a short period. Overall, the weather was very sunny.

#### **5.4.2.2 Data collection through user questionnaires**

“The observation/questionnaire dichotomy can be seen inside and outside the exploration of objects” (Michelson, 1975: 281). The observation and filming survey investigated how users of the waterfront interacted with the built environment, the events/programmes and the water. The user questionnaires provided a useful opportunity to explore the users’ inside impression of how they experienced the cultural waterfront. Thus, the objective of the questionnaire was to examine how users perceived and experienced the cultural waterfront and each element of the five factors whose functional and physical composition make the cultural waterfront. The questionnaire investigated six factors that are strongly related to the creation of the overall image of the cultural waterfront:

1. how the overall cultural waterfront was perceived
2. how the urban waterfront form was perceived
3. how the built environment was perceived
4. type of user and their perception of the waterfront
5. how the water was perceived
6. how the event and programmes were perceived

The questions in the questionnaire were based on these six factors and explored the users’ perceptions of these elements in a detailed manner. These questions comprised multiple choices along with open questions that asked for ranking rather than yes/no answers to provide wide qualitative data. The questionnaire consisted of 20 questions (see Appendix B) in three main parts:

1. general information on respondents
2. general perceptions of the waterfront
3. specific questions on the built environment, users, events/programs and the role of the water

A total of 102 people were questioned between 16<sup>th</sup> June and 20<sup>th</sup> July 2004 (Figure 5.15). The data from the 102 responses were collected and analysed through an SPSS package.

#### **5.4.2.3 Data collection through stakeholder interviews**

On the one hand, the questionnaire examined users’ perceptions of the cultural waterfront. On the other hand, the stakeholder interviews went further in investigating the managerial perspective of employees of the waterfront buildings, planners, urban designers, and architects who had been involved in managing and shaping the case study area. The stakeholder interviews sought the perception of managerial persons because their understanding of the

cultural waterfront provided different aspects of empirical data compared to the users. The framework of the stakeholder interviews consisted of three parts:

1. how the current waterfront and its transformation were seen
2. how the five factors made a contribution to the current cultural waterfront
3. an investigation of what factors made the current cultural waterfront successful

Two interview groups were chosen. The first group was an organisational group including Baltimore Development Corporation (BDC)<sup>12</sup> and Baltimore City Planning Department (BCDP), which played an important role in the overall transformation of the Inner Harbour. The second group was composed of those people who were closely involving in commissioning the key buildings, such as the Harbourplace, the Aquarium, and the Maritime Museum, to examine their role in creating the cultural waterfront. The second interview group, which was employed to work in key buildings, was selected from the five realms of the waterfront space. In addition, the selection of the interviewees was based on the literature review, which identified influential buildings on the current waterfront. Furthermore, most of the interviewees had grown up locally and been employed for more than 10 years. Because of that, it was possible to collect reliable empirical data on the transformation of the case study area over time, and reflecting its long redevelopment history (Figure 5.16 and 5.17).

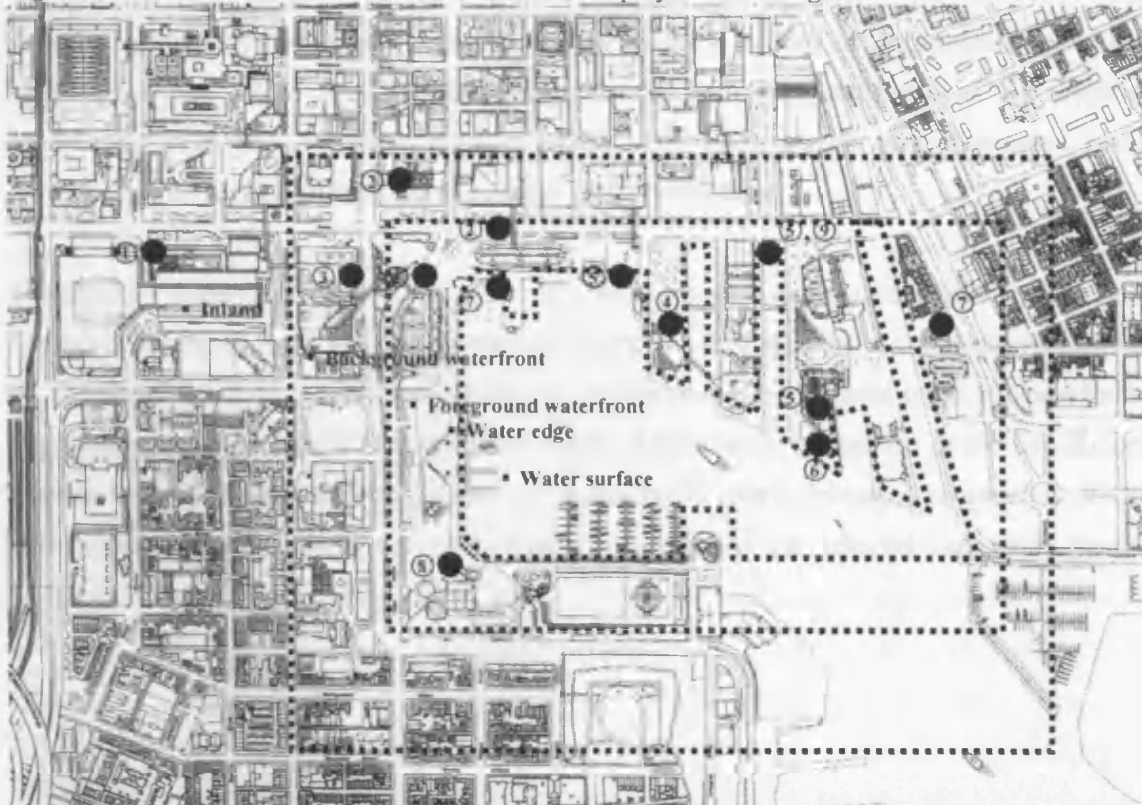
**Figure 5.16:** List of interviewees

<b>Organisation</b>	<b>organisation name</b>	<b>name</b>	<b>position and key role</b>
	Department of Planning	Gary Cole	Chief in Land Use & Urban Design Department
	Baltimore Development Corporation	Shubroto Bose	Chief Architect
	Charles Centre-Inner Harbour Management, Inc. (1965 to 1985)	Martin Millspaugh	Before: Chief Executive of Charles Centre-Inner Harbour Management, Inc. between 1965 and 1985. Now: Vice Chair of Enterprise Real Estate Services, Inc.
	Living Classrooms Foundation	Jennifer Riley	Marketing Director
<b>Buildings</b>	<b>realm</b>	<b>built environment</b>	<b>name &amp; position</b>
	Water surface	Baltimore Maritime Museum	John Kellett, Director of Maritime Museum
		USS Constellation	Christopher S. Rowsom, Executive Director
	Water's edge	Waterfront promenade	John Kellett, Director of Waterfront Promenade Partnership
	Foreground waterfront	National Aquarium	Andrea Butler, Media and Public Relations
		Maryland Science Centre	Christine Rowett, Director of media relations
		Public Work Museum	Vince Pompa, Curator
		The Harbourplace & Gallery	Adair Fogarty, Marketing Director
	Background waterfront	Hyatt Hotel	Antena, Frontdesk
	Inland	Baltimore Convention Centre	Lorna Walls, Director of Sales and Marketing,

<sup>12</sup> Charles Centre-Inner Harbour Management, Inc. absorbed two other city-controlled corporations and in 1995 became the Baltimore Development Corporation (BDC). Today, the BDC manages the economic development programme for the entire city (Millsaugh, 2003: 41). Thus, the BDC played a major role in the transformation of the Inner Harbour, from the beginning of the urban renewal programme on the waterfront.



**Figure 5.17:** The location of interviewees who were employed in buildings



**Note:** ①: Baltimore Convention Centre, ②: Harbourplace, ③: Hyatt Hotel, ④: National Aquarium, ⑤: Maritime Museum, ⑥: Living Classrooms Foundation, ⑦: Public Works Museum, ⑧: Maryland Science Museum, ⑨: Waterfront Promenade Partnership.

Seven different types of building were investigated through stakeholder interviews (Figure 5.17). The interviews were primarily conducted face to face in interviewee's offices in Baltimore. Email interviews, however, were conducted for the Aquarium and the Maryland Science Centre because their policy is to do interviews only with public media. Interviews with Martin Millspaugh was also conducted by email because of his schedule.

## 5.5 The limitations of the methodological approaches

Although the multi-dimensional approach was applied to analyse the spatio-functional characteristics of the cultural waterfront and collect tangible and intangible empirical data, several methodological limitations were found. Firstly, despite limited resources and time for the research, it might have been useful to select and look at other successful cultural waterfronts located on different continents relating to other redevelopment periods and other cultural contexts. This was partially addressed through the in-depth worldwide waterfront review presented in chapter 4.

Secondly, the case study was only conducted during the summer when the use of the waterfront was at its peak. As a result, it was not possible to look at the seasonal use of the cultural waterfront and its relationship to the five factors. An examination of the seasonal transformation of the waterfront might provide useful clues on the time dimension when considering the spatio-functional composition on the waterfront.

Finally, the thesis focused on one type of waterfront environment, the harbourside even though different types of waterfront, such as rivers, canals and lakes. As a result, limitations on the theorisation of the cultural waterfront resulted because different types of waterfronts might have different spatial characteristics which influence the interaction of the five factors that make a cultural waterfront. Based on the different methodological approaches of the multi-dimensional approach, the next chapter will examine the selected case study area – Baltimore Inner Harbour waterfront.

# **Chapter 6:**

## **The case study- Baltimore Inner Harbour**

The purpose of this chapter is to describe empirical data on Baltimore's Inner Harbour cultural waterfront using a multi-dimensional method. The multi-dimensional approach collects different types of empirical data to build up a picture of the elements that comprise Baltimore's Inner Harbour. The case study consists of four parts. Section 6.1 reviews the historical evolution of the waterfront and downtown area in order to understand the relationship between their growth and development. Based on the historical analysis, the morphological and pictorial evolution of the waterfront is examined. Section 6.2 maps out the current built environment of the waterfront and the function of each building type. Section 6.3 reviews the in-depth morphological analysis of the current built environment in a detailed manner. In section 6.4, the survey analysis consists of observations and filming, user questionnaires and stakeholder interviews conducted to investigate the relationship of the five factors governing the nature of the cultural waterfront through the collection of different types of qualitative and quantitative data. Section 6.5 synthesises the findings from the previous sections.

## 6.1 A historical analysis: a morphological and pictorial approach

### 6.1.1 The early settlement era

Baltimore is located between Washington D.C. and Philadelphia, on the north-east coast of the United States and was founded in 1729 (Olson, 1976 in Law, 1988: 150). It has been a leading seaport, since its establishment as a tobacco port in colonial times. It is a port city which has uniquely experienced recurring cycles of growth and decline over the last century. In addition, the city's renaissance from obsolete waterfront to the current cultural waterfront - provides an exemplary model for urban waterfront redevelopment worldwide (Figure 6.1). At present, it is the "largest city in Maryland in the US and is a major industrial base, home to more than 61 federal research laboratories, and education centres with a population of 651,154 (2000)" (Microsoft Encarta Encyclopaedia, 2003).

**Figure 6.1:** The current Baltimore Inner Harbour and its location (see inset)



Source: Google Earth (2004), inset: Microsoft Encarta Encyclopaedia (2004)

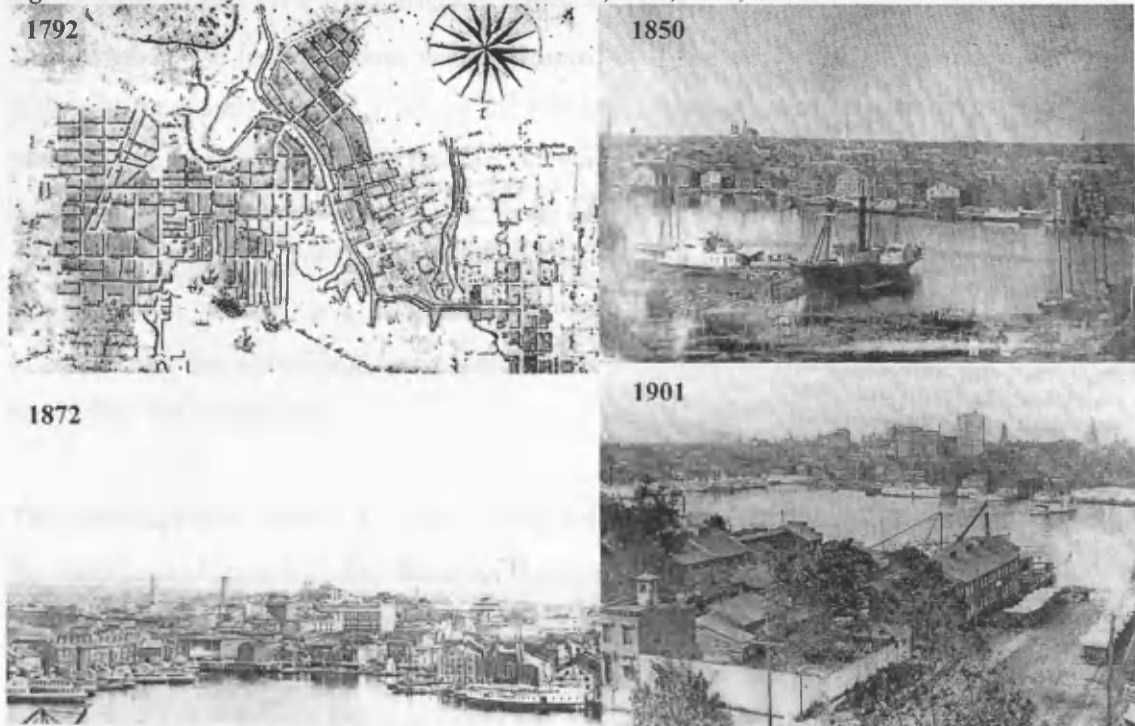
The history of Baltimore Inner Harbour can be traced back more than 200 years. "The city took its name from the town of Baltimore in Ireland, once a leading trading port of the Phoenicians<sup>13</sup>, and which has since dwindled to a small village" (Keith, 1991: 100). During the 18<sup>th</sup> century, three tiny hamlets - Baltimore Town set up by local entrepreneurs, Jones

<sup>13</sup> People who live Phoenicia, the ancient name for a narrow strip of territory on the eastern coast of the Mediterranean Sea, now largely in modern Lebanon (Microsoft Encarta Encyclopaedia, 2003).

Town founded by David Jones, and Fells Point founded by the Fell brothers – became the foundation of one of the busiest port cities in America (Miller, 1991).

In the mid-19<sup>th</sup> century, the Inner Harbour became the centre for commerce and manufacturing on Chesapeake Bay, and the gateway to the United States from abroad. Moreover, the Inner Harbour waterfront was a core industrial area with steel manufacturing, milling, fertiliser production, vegetable and oyster canning, and petroleum refining (Keith, 1991). In the late-19<sup>th</sup> century, due to the rapid growth of commerce and manufacturing industries, the shoreline became densely settled with warehouses and houses. Figure 6.2 (bottom, right), the 1901 view from Federal Hill, shows Baltimore's first skyscraper – the sixteen story Continental Trust Building, shown to the left of the U.S. Post Office and the Basilica. In addition, most of the waterfront was occupied by workers' housing and warehouses (Miller, 1991).


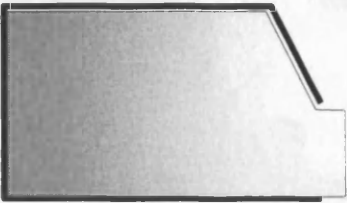
**Figure 6.2:** The early Baltimore Inner Harbour in 1792, 1850, 1872, and 1901



Source: Keith (1991, p102 and p104) and Miller (1999, p1 and p9)

A key physical change of Baltimore's Inner Harbour up to 1901 (Table 6.1) was influenced by the rapid growth of the shipbuilding industry at Fells point and the operation of steamboats, which were first built in 1813 (Keith, 1991). Due to this growth, the Inner Harbour began to shape the modern port.

**Table 6.1:** Major changes in the built environment and the waterfront up to 1901

Waterfront	Waterfront and hinterland	Key physical change
<ul style="list-style-type: none"> <li>■ Massive landfill along water's edge during the 1780s</li> <li>■ Prototype of Pratt and Light street but irregular</li> </ul>	<ul style="list-style-type: none"> <li>■ Rapid and random concentration of housing and buildings</li> <li>■ Start of plan for the first skyscraper (Continental Trust building, U.S. Post Office, the Basilica)</li> </ul>	<ul style="list-style-type: none"> <li>■ Extensive landfill to maximise the accessibility and efficiency of the waterfront for transportation and commerce</li> </ul>
<b>Major physical change of the waterfront</b>		
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>Before landfill</p>  </div> <div style="text-align: center;"> <p>→</p> </div> <div style="text-align: center;"> <p>After landfill</p>  </div> </div> <p>Source: Keith (1991, p101)</p>		

### 6.1.2 The great fire and the reconstruction

The growth of the Inner Harbour was interrupted by a fire on 7<sup>th</sup> and 8<sup>th</sup> February 1904 that destroyed the waterfront and much of the historic downtown area (Figure 6.3). “Eighty-six blocks of the city were reduced to rubble, including all of the Pratt Street piers in what is now known as the Inner Harbour. More than 1,500 buildings and 2,500 businesses were devastated” (BACAV, 2004; Keith, 1991). That fire damaged most of the built environment along the Pratt Street wharves. Because of the scale of damage from the fire, it was necessary to reconstruct the waterfront. Consequently, the fire provided an opportunity for the city to reconstruct the waterfront.

The construction of Piers 3, 4, 5 and 6 along Pratt Street made a significant improvement to the waterfront (Figure 6.3). Furthermore, changing the profile of the water's edge from linear to engineered convex and concave shapes maximised the usage of the waterfront space for future uses. The drastic change in the built environment along Pratt Street after the fire provided extended contact points between the water and the land (Table 6.2).

**Figure 6.3:** The view of the great fire in 1904 (top) and reconstruction of the docks: workers drive pilings for Pier 3 construction (bottom)







Source: Keith (1991, p108)

**Table 6.2:** Major change in the built environment and the waterfront after the 1904 fire

Waterfront	Waterfront and the hinterland	Key physical change
<ul style="list-style-type: none"> <li>■ Great fire resulted in destruction of Pratt Street waterfront buildings</li> <li>■ Immediate redevelopment to construct the current configuration of Piers 3, 4, 5, 6</li> <li>■ Eventually, the reconstruction after the fire created the current engineered convex and concave water's edge</li> </ul>	<ul style="list-style-type: none"> <li>■ The fire demolished buildings along Pratt Street and along to Fells Point</li> <li>■ Power Plant survived the fire</li> <li>■ Refurbishment of Pratt Street</li> </ul>	<ul style="list-style-type: none"> <li>■ Engineered Pratt Street shoreline</li> </ul>
<b>The physical transformation of the waterfront</b>		

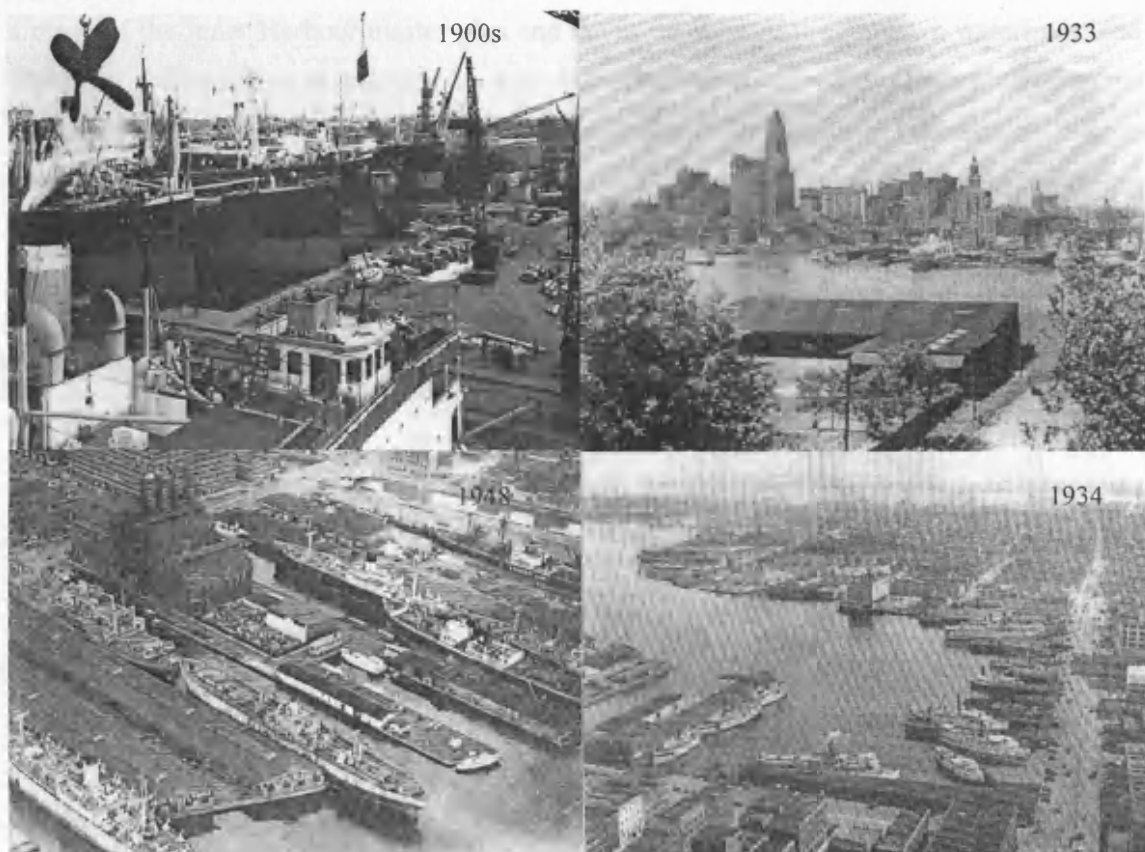
### 6.1.3 The growth and recession

The Inner harbour grew with various industrial manufacturing and commercial activities until World War II. "The two world wars renewed demands for Baltimore's port facilities and fostered development of a solid heavy industrial base such as shipbuilding and repair"

(Skyscraper, 2002). At the same time, the downtown area began to take shape with the construction of modern skyscrapers until the mid-20<sup>th</sup> century.

However, after the demise of the steamboat era and the depression in the world economy after World War II, the Inner Harbour experienced rapid economic decline in port-related industries. During the late 1950s, the predominant port-related industries such as steel manufacturing, shipbuilding, and water-related transportation began to decline because of the restructuring of the world economy and new advanced transportation technologies, such as air cargo transport and containerisation (Figure 6.4). Consequently, with the decline of the waterfront, Baltimore's inner city experienced a decline in its local businesses along with a population decrease and poor housing conditions. The decay of the inner city was accelerated by the expansion of Baltimore's suburbs. As a result, in the Inner Harbour and the downtown, "the skyline became a mirror of image of its depression-era" (Miller, 1991: 14).

**Figure 6.4:** The growth of water-related industries and the expansion of the downtown area



**Source:** Keith (1991, p8 and p113) and (Miller, 1999, p11 and p24)

1.Ship building and repair industries (top, left). 2.Downtown skyscraper from Federal Hill in 1933 (top, right). 3.General cargo freighters at Piers 3,4,5 in 1948 (bottom, left). 4.Looking South along Light street in 1934 (top left),

The decline of port-related commercial activities also had a great influence on the deteriorating image of the waterfront's physical and social environment. Most buildings






became derelict. For example, the decline of the steamboat industry resulted in the disappearance of the Baltimore Steam Packet Company, and the Old Bay Line that had served Baltimore and Norfolk since 1817 (Table 6.3). As a result, the Light Street piers were torn down in 1950, exacerbating the image of depression on the waterfront (Keith, 1991).

However, following the success of the Charles Centre's urban renewal plan (see section 6.1.4), a dramatic landfill extension along the Light Street waterfront was carried out as part of the Inner Harbour urban renewal plan. It was accelerated by the approval for compulsory purchase of land surrounding the harbour basin in 1964 by the company set up to oversee the renewal, the Charles Centre-Inner Harbour Inc. A major reconfiguration of the water's edge took place along Light Street between the 1940s and the 1960s, while most of the formation of the engineered convex and concave waterfront along Pratt Street had already been created after the great fire in 1904.

It was after 1968 that the dramatic change to the current Inner Harbour shoreline took place as a result of the Inner Harbour master plan and the acquisition of the rundown waterfront land (Table 6.3). Significant change was made to the waterfront basin and shoreline but also to the surrounding waterfront's built environment, which underwent substantial demolition (Figure 6.6), especially around Camden Yard, to create public open space for leisure, parks, gathering places and the waterfront promenade (Table 6.3).

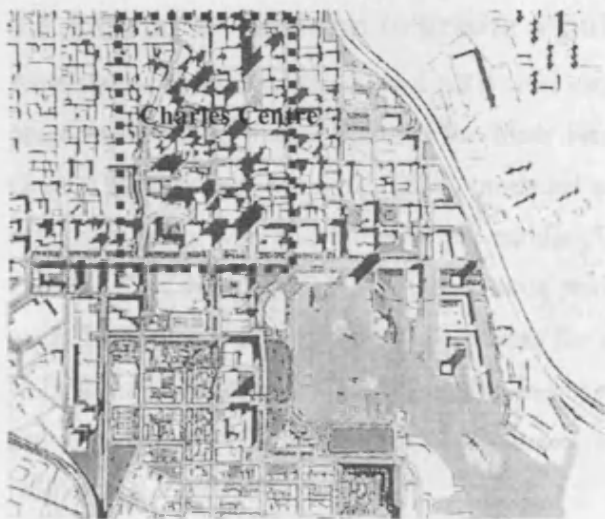
**Table 6.3:** Major change in the built environment and the waterfront between World War II and 1968

Waterfront	The city and the waterfront	Key physical change
<ul style="list-style-type: none"> <li>■ Dramatic landfill process for Light and Pratt street waterfronts</li> <li>■ The landfill concept became the current prototype of waterfronts</li> <li>■ reshaping almost all of the current shoreline.</li> <li>■ Foundation for creating the current cultural waterfront</li> </ul>	<ul style="list-style-type: none"> <li>■ Demolition of warehouses and derelict buildings took place from the Light street waterfront to Camden yard; Kew Highway; and Pratt Street</li> <li>■ The demolition and clearing of the waterfront shaped the current Key Highway-Light-Pratt Street waterfront</li> <li>■ The clearance of derelict waterfront buildings provided opportunities to create squares and parks.</li> </ul>	<ul style="list-style-type: none"> <li>■ Acquiring the waterfront as a public domain and regional playground</li> <li>■ Rearrangement and clearing of waterfront buildings to provide visual and physical access route</li> <li>■ creating waterfront shoreline to enable public access</li> </ul>
<b>The physical transformation of the waterfront</b>		
<p>The view of Light Street in 1925</p>  <p>Source: Miller (1998, p18 )</p>	<p>The view of the Inner Harbour in 1948</p>  <p>Source: Keith (1991, p116)</p>	<p>After the landfill of in 1967</p>  <p>Source: Keith (1991, p116)</p>

### 6.1.4 The Charles Centre redevelopment

The renaissance of downtown Baltimore began in 1959 with the redevelopment of the 33-acre Charles Centre urban renewal programme to address the decline of the inner city, which had experienced a 20 percent decrease in population in the 1960s with the disappearance of port-related industries and jobs (Figure 6.5). “Desperation was growing in the leadership of the city’s business communities, which created a Committee for Downtown to raise private funds for the preparation of a master plan that would be the basis for reversing the decline” (Millspaugh, 2003: 36). The \$200 million project initiated the city’s redevelopment of the 240-acre Inner Harbour property” (Baltimore Area Convention and Visitors Association, 2002). “The Charles Centre project became the first in the United States that called for the redevelopment of the very centre of downtown” (Millspaugh, 2003: 37).

**Figure 6.5:** Charles Centre and the Inner Harbour master plan prepared by CCIHMC



Source: Meyer (1999, p262)

“The Charles Centre projects were composed of major high-rise modernistic buildings, consisting of skyscrapers contained over 2,000,000 square metres of office space, 40,000 square meters of retail premises, a hotel, a theatre, and 300 apartments” (Millspaugh in Law, 1988: 153). The first building in the 33 acre Charles Centre was the 25-storey One Charles Centre building finished in 1963. It housed a mixture of government, financial, insurance and legal offices. Following the construction of One Charles Centre, there was further construction to the south of the area: the Sun Life building in 1966; the Charles Centre North Apartments in 1967; the Mechanic Theatre in 1967; the Fallon Federal Office building in 1967; the Charles Tower South Apartments in 1969; the Mercantile Bank and Trust Company in 1969; the Wyndham Inner Harbour Hotel in 1974; and Charles Centre South in 1975 (Miller, 1998). “The urban renewal effort of the 1960s created a highly functional and strong

modernist downtown of offices, plazas and occasionally spectacular architecture, such as the Mies van der Rohe building of One Charles Centre” (Harvey, 1989: 88-89).

The significant contribution of the Charles Centre project was that it succeeded in revitalising the rundown downtown area and its economy while providing an exemplary model of inner city renewal. The success of the Charles Centre’s 10 year urban renewal project “made it clear that the public and private sectors had gained the momentum and confidence required to tackle the redevelopment of the downtown waterfront – an area eight times as large as the Charles Centre” (Millspaugh, 2003: 37). In addition, it led to the establishment of two important organisations, which played significant roles in shaping the new waterfront, called the Charles Centre-Inner Harbour Management Corporation (CCIHMC), and the Architectural Review Board (ARB).

### **6.1.5 Land acquisition to create a public domain**

After the innovative CCIHMC and ARB were established, the first job they undertook was the preparation of the master plan for the Inner Harbour waterfront area in 1963. In 1964, the Greater Baltimore Committee (BDC) produced a plan which “envisaged 22 hectares of park; offices; housing which would bring the middle classes back downtown; and public and tourist buildings” (Law, 1993: 153). It had three main approaches along the four sides of the waterfront. “First, a row of prestigious sites for office buildings along Pratt Street facing the waterfront; second, multi-family housing in the eastern and western sectors; and third, in the centre, a public playground for Baltimorean along the shoreline of the Inner Harbour” (Millspaugh, 2003: 37).

**Figure 6.6:** The Inner Harbour in 1968 was dominated by rundown wharves, markets, warehouses, and roadways.



Source: Millspaugh (2001, p74)

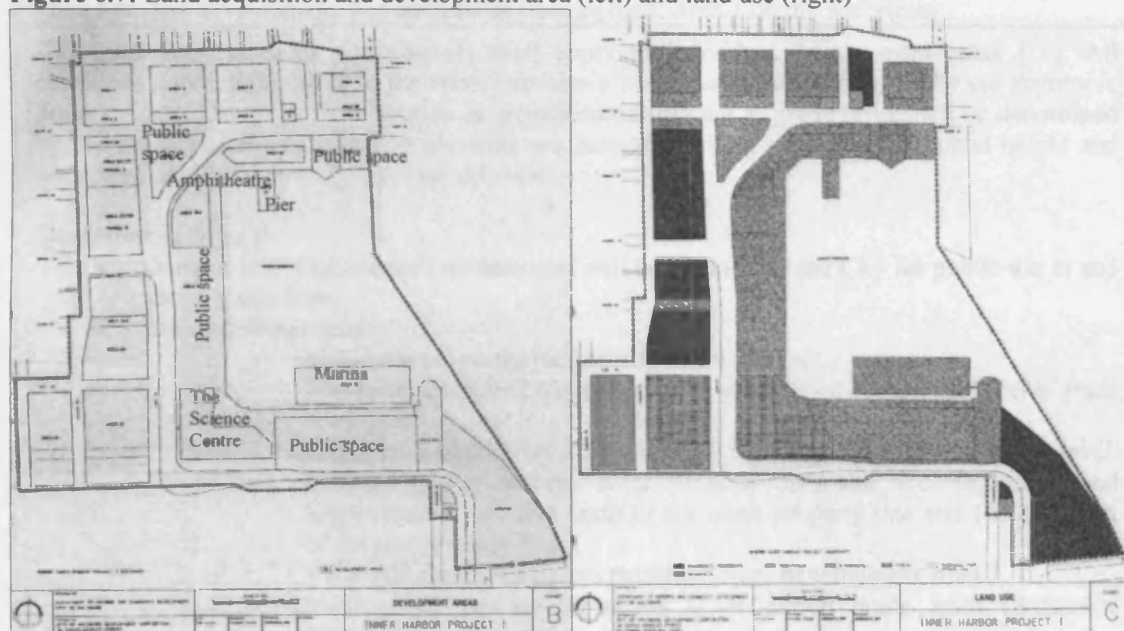
To achieve the aims of the master plan, two essential steps were required. The acquisition of the rundown waterfront spaces, and the reconfiguration of the water’s edge and the water

basin (Figure 6.6). In 1964, CCIHMC got permission to acquire the waterfront and clear land surrounding the waterfront basin (Figure 6.7). However, it also required sophisticated political leadership and negotiations. In the words of Millspaugh (2003: 38):

Urban renewal entailed the acquisition of almost 1,000 properties and the relocation of more than 700 businesses – including the city's wholesale produce market, the state tobacco warehouse, and an operating fish-oil refinery. The urban renewal process also meant dealing with 14 local, state and federal agencies that had jurisdiction over some aspect of the land and water (Millspaugh, 2003: 38).

Despite the complexity of the planning process, the demolition of the rundown built environment and rearrangement of the harbour basin started in 1968. The Inner harbour experienced a dramatic transformation over the following two decades under the leadership of CCIHMC.

**Figure 6.7:** Land acquisition and development area (left) and land use (right)



Source: Baltimore Development Corporation (1967)

As Figure 6.7 shows, a large amount of acquired land was dedicated to public and semi-public space near the water's edge. In addition, the buildings in the foreground waterfront realm were public use building such as the Science Centre and Amphitheatre. Above all, the continuous waterfront promenade along the water's edge realm symbolised the public use of the waterfront. In other words, the key theme of the master plan was the waterfront as a public domain. The spatio-functional structure of the development areas were dedicated to public use rather than commercial activities. The concept of the waterfront as a public domain early in the design process allowed not only for the provision of a wide public open

space and promenade along the waterfront but also for the creation of a cornerstone for the culturally oriented spatial structure.

In addition, the Inner Harbour master plan set up a high standard of design, “supported by an advisory Architectural Review Board made up of the deans of architecture from Harvard, the Massachusetts Institute of Technology, the University of Pennsylvania – chosen because they would have sufficient prestige to overrule the most illustrious of the developer’s architects if necessary” (Millspaugh, 2003: 38). The plan set out the detailed design guidelines for building types for 24 individual development areas. Due to the detailed design guidance and control for each area of land, it was possible to achieve a high quality of design and public use of the waterfront, which provided the foundation for long-term success. An example was the introduction of the Development Area Controls and Development Area 1:

**Figure 6.8:** The development area controls of Development Area 1 on the waterfront

The following Standards and controls shall apply to individual development areas [...]. All elevations noted herein refer to the elevations above Mean Low Tide as adopted by the Baltimore Survey Control System. The elevation or elevations established as grade level shall be determined by the Agency. Landscape design elements are permitted within maximum permitted height and maximum permitted coverage contained herein.

**Development Area 1**

- a. General Use: Commercial; an easement will be retained by the City for public use at and above grade level
- b. Building requirements:
  - i. Maximum permitted Height: Elevation 538 feet.
  - ii. Maximum Permitted Coverage: up to grade level -100% and above grade level-24%
  - iii. Required Setback: on the southeast corner at and above grade level, bounded by the east and south property lines and lines parallel to and approximately 140 feet north of the south property line and 125 feet west of the east property line.
  - iv. Vehicular access: no access permitted from development Area 2.
  - v. Parking: no parking permitted at or above grade level (Baltimore Development Corporation, 1967:11)

**Source:** Baltimore Development Corporation (1967)

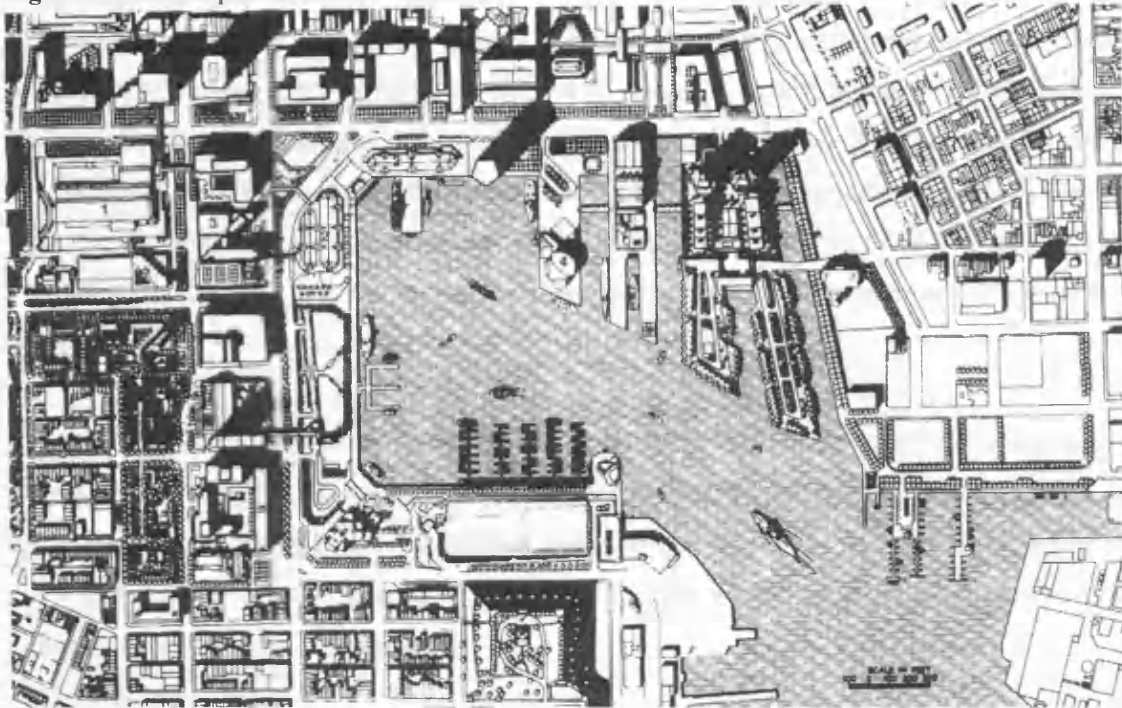
### 6.1.6 Renaissance of the Inner Harbour

Based on the sophisticated master plan with high quality design guidance and organisational support from CCIHMC, Architectural Review Board, and Baltimore Development Committee (Figure 6.9), the Inner Harbour renaissance begin with the approval to acquire and clear land surrounding the waterfront basin. During the 1960s and early 1970s, major tasks included the 50 million dollar investment to reconfigure the waterfront basin and the demolition of decaying buildings on the waterfront (Figure 6.10). Unfortunately, the demolition process eradicated the major historical context of the surrounding waterfront, especially along Light



Street and Camden Yard. Placement of the ship the USS Constellation at Pier 1 as the first tourist attraction in 1969 became a visual focal point on the waterfront.

**Figure 6.9:** Master plan of the Inner Harbour



Source: The Urban Land Institute (1983, p150)

**Figure 6.10:** The view of the Inner Harbour in 1973 demonstrated the massive demolition that had taken place on the waterfront (ample space was available for outdoor festivals and recreational uses).



Source: The Urban Land Institute (1983, p149)

On the one hand, the whole-scale demolition of waterfront buildings destroyed valuable architectural history on the waterfront. On the other hand, the demolition created a wide public open space along the water's edge. Mayor Donald Schaefer, in his first term of office, saw the potential of the open space as important local gathering places. He launched an "aggressive program of activities and free entertainment in 1970 putting his full support into the effort. It began with a smorgasbord of do-it-yourself leisure pursuits – flea markets, fireboat displays, antique fire engine display etc. – called 'Sunny Sundays', which were followed by free concerts, boat races and parades" (The Urban Land Institute, 1983: 149). In addition, the City Fair moved to the Inner Harbour from the downtown in 1973 (Figure 6.11), and other many social, cultural and activity-oriented events and festivals took place on the waterfront.

The result was very successful in terms of economic and socio-cultural aspects. It also created civic pride and enhanced the identity of the area. Interestingly, in fact, the empty waterfront space became an important local gathering and entertainment space before the formation of the waterfront's built environment. It can be said that the waterfront had great potential as a cultural waterfront from the beginning.

**Figure 6.11:** The 10<sup>th</sup> three-day Baltimore City Fair moved from downtown to the Inner Harbour, attracting daily crowds of half a million visitors.



Source: Brambilla and Longo (1979, p135)

In the 1970s, major office buildings and community facilities were constructed along both the Light and Pratt Streets waterfront. USF&G (1973), IBM (1975), the Federal Courthouse (1976), the C&P Telephone Company (1977), and the World Trade Centre (1977) all located here. The concentration of these office blocks played a significant part in creating a critical mass of revitalising waterfront activities during the weekdays and in promoting the perception of a changing waterfront. With the construction of office blocks, several attractive recreational and leisure spots were created that had direct contact with the water - floating attractions, such as a Peddle Boat Rental shop (1977), 158 slips at the Inner Harbour Marina (1977), and the first Water Taxi (1978), which provided direct access to the shoreline for local people and tourists. The simple addition of the Peddle Boat Rental next to pier 1 became one of the most popular activity nodes at that time. There were many initiatives to animate the water surface realm. According to Millspaugh (2003: 38):

Since the Inner Harbour was a backwater of a Chesapeake Bay tributary with no water traffic, the strategy was to bring in floating attractions to activate the public space, in addition to the planned marina and finger piers for working boats. In came privately operated tour boats, a shuttle boat to the historic shrine at Fort McHery, a dock for pedal boats that could be rented by the hour, a World War II submarine, and a coastal steamer converted into a restaurant. On the west shore, a 700-foot stretch of the bulkhead was dedicated as the Public Wharf for visiting ships, and it soon began to attract international tall, square-rigged vessels, such as the Russian *Tovarisch* and the Canadian *Bluenose*. (Millspaugh, 2003: 38)

An event which became a turning point for the Inner Harbour as a national tourist attraction, took place 'by chance' in July 1976. The arrival of the promotional ambassador in the form of eight tall ships for ten days after the celebration of the U.S. Bicentennial in New York opened up a new vision of the Inner Harbour as a national tourist attraction. The eight tall ships attracted a hundred thousand people from outside Baltimore (Millspaugh, 1993, 2003:39). The dramatic transformation of the Inner Harbour during the visit of the tall ships in terms of the use patterns and the number of visitors provided CCIHMC with a new direction and potential for the development of the waterfront as a national and international tourist destination. Since then, the Tall Ships event has taken place annually and played an important role in transforming the waterfront into an international cultural waterfront (Figure 6.12).

After the unexpected success of the Tall Ships event, further building construction took place along the water's edge: Maryland Science Centre (1976): 28 story World Trade Centre which has a Top of the World Observation Deck & Exhibition Centre in the building (1977). The Maryland Science Centre and Imax theatre (1986) has attracted more than 650,000 visitors annually, including 250,000 children and teachers since its opening (email interview with director of media relations of the Science Centre, 2002) (Figure 6.13).



**Figure 6.12:** The visit of the Tall Ships during America's Bicentennial celebrations in 1973 (top). Tall ship 'Mircea' from the Romanian navy was opened to the public during Fourth of July Sailabration from 30<sup>th</sup> June to 4<sup>th</sup> July 2004 (bottom)



Source: Keith (1991, p5)



Source: Author (July, 2004)

Also, the 28 story World Trade Centre and its Observation & Exhibition Centre at the edge of the waterfront became a landmark building. The observation deck provides a picturesque view of the waterfront landscape for visitors. In addition, with office buildings around the waterfront, workers in the buildings contributed to the liveliness of the waterfront during the daytime and night time.

**Figure 6.13: Maryland Science Centre**



In 1975, the completion of the wide and pedestrian-only waterfront promenade provided accessibility to the water's edge and functioned as a linear public domain linking the key buildings and points of interest (Figure 6.14). The promenade provided an important foundation for the design concept supporting spatial justice, where people from all walks of life can enjoy the waterfront. With the addition of the Rash Memorial Sports Park (1976), the Light Street Promenade offered physical and visual openness as a public amenity.

**Figure 6.14: The achievement of the waterfront promenade for public use along the water's edge**



In the late 1970s and early 1980s, the waterfront transformed its image from a regional playground to national and international cultural quarter through the construction of new buildings along the waterfront (Figure 6.22 and Figure 6.24). Despite the buildings built in the mid 1970s, "the waterfront lacked a focus – a purpose that would draw the public to the amenity, which it had been created for. It had no centre" (Green, 1993). However, four

buildings – the Baltimore Convention Centre in 1979 (Figure 6.15), the Harbourplace in 1980, the National Aquarium in 1981 and the Hyatt Regency Hotel in 1980– made a great contribution to the transformation of this urban area (Falk, 1986; Bruttomesso, 1993; Breen & Rigby, 1994, 1996; Millspaugh, 1993, 2001, 2003; Meyer, 1999).

**Figure 6.15:** The Baltimore Convention Centre



In particular, the success of the Harbourplace was crucial. The two story Harbourplace succeeded in overcoming a lack of focus on the waterfront and also attracted a critical mass of visitors, guaranteeing the economic regeneration of the area. Behind the success, Baltimorean entrepreneur, James Rouse, played a significant role. As the founder of the James Rouse Company, he “was attracted to the Inner Harbour because of four main factors: amenities of water and open space; easy access to downtown and the metropolitan region; the availability of parking; and the political and financial support of the city in its backing of the Inner Harbour area” (The Urban Land Institute, 1983: 152). In addition, after the success in implementing the concept of the ‘Festive Marketplace’ and the refurbishment of the historic Faneuil Hall Marketplace in Boston by the Rouse Company, Harbourplace was constructed to achieve a similar result while linking the downtown and Inner Harbour areas (The Urban Land Institute, 1993). The application of the concept of the ‘Festive Marketplace’<sup>14</sup> at Harbourplace was a key factor in its success. Year-round, free entertainment, performances and musical concerts filled it inside and out. The Harbourplace consisted of 120 shops, 16 restaurants and 40 eateries (including The Gallery, added in 1987). Harbourplace had 18 million visitors in its first year of operation, which ended in July 1981, and sales were well in excess of twice what a typical regional mall produced (The Urban Land Institute, 1993). In terms of the visiting numbers, “it was paid greater public attention than Disney World”

<sup>14</sup> It is the key retail development approach of the Rouse Company which owned, managed and operated it. These properties are destinations, typically in an urban setting, which combine exciting shopping, dining and entertainment activities in a distinctive, often historical setting, [especially waterfront spaces], such as Bayside Marketplace in Miami, Faneuil Hall Marketplace in Boston, The Jacksonville Landing in Florida, Riverwalk in New Orleans, South Street Seaport in New York, and Water Tower Place in Chicago (The Rouse Company, 2002).

(Meyer, 1999: 264). It also became “the world’s liveliest retail operation in sales per square foot” (Keith, 1991: 96). The symbolic meaning of the success of Harbourplace lay in its transformation of the image of Baltimore Inner Harbour from a local public domain to a national tourist and shopping destination. The success of the Harbourplace, the socio-culturally oriented, quasi-commercial, festive marketplace concept has become widely accepted as the way forward for future waterfront redevelopments.

**Figure 6.16:** The Harbourplace – two pavilions in Light Street (top) and Pratt Street (bottom)



In 1981, the construction of the landmark National Aquarium produced another successful cultural building. It attracted an average annual attendance of 1.7 million visitors since opening. The success of the Aquarium “generated nearly \$220 million in revenues, 2000 jobs, and \$6.8 million in state and local taxes” (general press kit of the Aquarium, 2002). In particular, its unique architectural design made it a landmark, and a vital component in the Inner Harbour complex. In addition, the management and programs of the aquarium provided a prototypical example for others to follow around the world. By 1982, with the construction of the Convention Centre, along with Harbourplace and the Aquarium, the Inner Harbour waterfront had succeeded in creating an international reputation for Baltimore’s cultural waterfront.

**Figure 6.17:** The view of the Aquarium at Pier 3 and the Marine Mammal Pavilion at Pier 4



The success of the four newest buildings resulted in a remarkable outcome. “By 1982, attendance at the Inner Harbour was estimated at 20 million visits a year: two-thirds were locals, coming again and again: the other one-third, or 6.5 million people, consisted of tourists. In 1986, the shoreline received the ULI [Urban Land Institute] Award of Excellence” (Millsbaugh, 2003: 40). The success boosted more development along the water’s edge and in the surrounding waterfront area. To accommodate tourists and business, visitors, hotel, offices and public amenities were built around the waterfront and in the waterfront hinterland. In other words, the success of the Inner Harbour as a local and world tourist attraction led to a boom in hotel construction to accommodate the number of visitors and businessmen. “It is obvious in that between 1981 and 1987 the seven hotels built around the Inner Harbour added 2488 bedrooms to the accommodation available in the city” (Law, 1988: 156). In the mid 1980s, “a survey by the Office of Promotion and Tourism showed that the number of summer visitors to Baltimore’s central area from outside the city increased from 2.25 million in 1980, to 6.8 million in 1984 and 7.5 million in 1986. And their expenditure rose even more rapidly: from \$125 million in 1980, to \$400 million in 1984 and to \$650 million in 1986” (Law, 1988: 156).

**Figure 6.18:** Aerial view of Baltimore’s Inner Harbour and downtown circa 1985



Source: The Urban Land Institute (1983, p146)

During the 1990s, more cultural and leisure facilities were added along the waterfront. With the successful commercial, cultural and residential redevelopment of the 1980s, the 1990s was the era that firmly established the renaissance of Baltimore’s waterfront as a world example. New construction and expansion took place: the addition of a 1,200 seat Marine Mammal



Pavilion at the end of Pier 4 (1990); the opening of Pier 6 Concert Pavilion (1991), the American Visionary Art Museum (1995); the opening of the world's first ESPN Zone (1997); a Hard Rock Café in the old Powerplant (1996); and the kid-powered museum Port Discovery (1998). In particular, the opening of PSINet stadium (1997) near to the waterfront made a great contribution to sustaining major national sports facilities.

**Figure 6.19:** Conversion of old power plant into leisure and entertainment facilities



The growth of the cultural waterfront still continues into the 21<sup>st</sup> Century. According to the Baltimore Area Convention and Visitor's Association (BACVA) (2002), "Baltimore City was visited by 13 million people last year. They spent 2.75 billion dollars". The Harbourplace itself was visited by around 9 million people in 2003 (interview with Marketing Director of the Harbourplace in 2004). The majority of people who visit the city visit the waterfront. To cater to this growth, a new Visitors Information Centre was opened in 2003 (Figure 6.20). The expansion of the National Aquarium was under way in 2004 when the case study data collection took place (Figure 6.21). Several new office buildings are also under construction along Pratt Street and Key Highway waterfront. At present, the profile of the waterfront is inseparable from Baltimore city's economic and socio-cultural identity. As a summary, Figure 6.22 demonstrates the whole development of the built environment from the 1960s to the present.

**Figure 6.20:** New Visitor's Information Centre, built in 2003



**Figure 6.21:** The Aquarium is under construction, opening in 2004



**Figure 6.22: The chronology of the Inner Harbour redevelopment**

<b>Time</b>	<b>Year</b>	<b>Major development</b>
<b>1960s</b>	1963	Preparation of the master plan for the Inner Harbour redevelopment.
	1964	Approval of the acquiring and clearing of land surrounding the harbour basin.
	1965	Contract with Charles Centre-Inner Harbour Management, Inc. to execute the Inner Harbour redevelopment.
	1967	The first phase urban renewal plan - the 110-acre project will add residential, social and cultural facilities; hotels; and offices to the city's waterfront.
	1968	The demolition and clearing of land surrounding the harbour basin begins
	1969	The U.S.S. Constellation moves to Pier 1 and becomes the first tourist attraction located in the Inner Harbour.
	1971	An urban renewal plan for Inner Harbour West, the second phase of the Inner Harbour redevelopment, is approved by the city An urban renewal plan for Inner Harbour East is approved
	1972	Construction is completed for the Constellation's new dock at Pier 1
	1973	The 40-story USF&G opens its new headquarters at the corner of Light and Pratt Streets.
	1974	The Christ Lutheran Church Harbour Apartments open with 288 units of housing for the low-income elderly The IBM Corporation completes its new office building on Pratt Street overlooking the Inner Harbour.
	1975	Paddleboat rentals begin and become one of the Harbour's most popular recreational activities. A 625-car parking garage is completed at the corner of Pratt and Gay Streets. Joseph H. Rash Memorial Sports Park (Rash Field) opens - citywide public events and athletic contests.
<b>1970s</b>	1976	Maryland Science Centre opens America's Bicentennial celebration (Tall Ships visit) Thousands of residents and visitors view the Inner Harbour redevelopment for the first time and discover its beauty and recreational opportunities. The Harbour Campus of the Community College of Baltimore opens A new Federal Courthouse and office building opens in Inner Harbour West. 28-story World Trade Centre opens - 27th floor Top of the World Observation Deck and exhibition centre
	1977	C&P Telephone Company is completed at Pratt and Light Streets. The Pride of Baltimore, a replica of a 19th century Baltimore Clipper, is launched. Urban renewal plans for the Financial District and Municipal Centres are approved. The Inner Harbour Marina, featuring 158 slips, is completed.
	1978	launched the city's first Water Taxi
	1979	Baltimore Convention Centre open - two blocks from the Inner Harbour The Chart House restaurant opens on Pier 4
<b>1980s</b>	1980	The Rouse Company completes Harbourplace, The Hanover Square apartments open - 199 apartments for the elderly. Equitable Bank Centre opens at Charles and Pratt Streets. The Holocaust Memorial opens
	1981	The 2,000 seat (with an additional 1,000 lawn seats) Pier 6 Summer Concert Pavilion is completed The National Aquarium opens at Pier 3. Regarded as one of the world's best marine exhibitions The 500-room Hyatt Regency hotel is completed The Inner Harbor Skywalk system is completed to provide overhead pedestrian walkways between Harborplace, the Hyatt Regency, the Convention Center, the Convention Center Mall and the Charles Center. The Lightship Chesapeake joins the U.S.S. Torsk to form the Baltimore Maritime Museum at Pier 4 The Minnie V., an authentic Chesapeake Bay Skipjack, begins to operate tours from its berth near the Harborplace Amphitheatre An antique carousel is brought to the west shoreline and is later permanently installed on the south shoreline. The Rusty Scupper Restaurant opens adjacent to the Inner Harbor marina. The Inner Harbor Center Office building opens at 400 E. Pratt Street.
	1982	McKeldin Square and Meyerhoff Fountain The Baltimore Public Works Museum opens in the old pumping station The Federal Reserve Bank opens a new building near Camden Station.
	1983	An urban renewal plan for the Camden Yards area is approved by the city The Baltimore Box Office and Visitor Information Center is opened at Pier 4 Brookshire Hotel
	1984	The 250-room Days Inn opens on Hopkins Place The 210-room Comfort Inn opens at 24 W. Franklin Street Baltimore Federal Financial Bank headquarters opens at Lombard and Commerce Streets Lady Baltimore, a new excursion boat, is added to attractions



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- The Six Flags Power Plant opens as an urban family entertainment center in the old power plant building on Pier 4
    - The 350-room Sheraton Inner Harbor Hotel opens at South Charles and Conway Streets
    - The 350-room Marriott Inner Harbor Hotel opens at Pratt and Eutaw Streets.
  - 1985
    - The 105-room Peabody Court luxury hotel opens at Mt. Vernon Place.
    - The International Flower Garden is installed at Rash Field.
    - Festival Hall opens as part of the Convention Center complex - ethnic festivals, shows and other public events.
    - Harbor Park Cinema, featuring nine movie theaters, opens at Market Place.
    - Clipper City, 150-foot replica of a 19th century schooner is added to attractions.
    - The Harbor Court Hotel, featuring 200 rooms, 165 luxury condominium apartments, shops and a garage with 900 spaces, opens to Light and Lee Streets.
    - The Maryland Science Center completes a new exhibition space and a glass facade overlooking the Inner Harbour.
    - The Baltimore Convention Center expansion finishes its \$12.9 million project, increasing the building's exhibit space to 194,000 square feet.
  - 1986
    - The 250 West Pratt Street office building at the corner of Pratt and Howard Streets is completed.
    - Lady Maryland is completed for use by Maryland students as a floating classroom.
    - Signet Tower, a 374,000 square foot headquarters for Signet Bank, opens at the northeast corner of St. Paul and Baltimore Streets.
    - Six St. Paul Centre, a 305,000 square foot office building, opens at the northwest corner of St. Paul and Baltimore Streets.
    - An urban renewal plan for Key Highway is approved by the city.
    - The 75-foot schooner Eagle is added to attractions.
  - 1987
    - The Redwood Tower, a 210,000 square foot office building, opens at 217 E. Redwood Street.
    - The Maryland Science Center opens its five-story IMAX Theater
    - The Market Restaurant and Baltimore's Original Sports Bar opens in the Brokerage.
    - Retail shops and a 1,150-car garage at The Gallery at Harborplace.
    - The full-service Baltimore Visitors Information Centre opens in The Brokerage at 600 Water Street.
    - Trial phase of Harbor Walk Townhouses in Inner Harbor West completed
    - A 622-room Stouffer Hotel and 16-story Legg Mason office tower open in The Gallery at Harborplace.
    - Scarlett Place, a mixed-use development containing 145 luxury condominium apartments, offices, shop and a garage, opens at Pratt Street near the Jones Falls Expressway.
  - 1988
    - The Pride of Baltimore II, a replacement for the Pride of Baltimore lost at sea in 1986, is launched.
    - The Seven Foot Knoll Lighthouse is relocated on Pier 5
    - The Rivoli Building, a 270,000 square foot municipal office building, opens at Gay and Fayette Streets.
    - Pride of Baltimore memorial dedicated on Rash Field.
    - Columbus Plaza, south of Scarlet Plaza, is completed
    - Harrison's at Pier 5, a 70-room inn with transportation to the Eastern Shore for hunting and fishing, a crab house and restaurant opens on Pier 5.
  - 1989
    - The Equitable Bank completes a new office tower at Lombard and Hanover Streets.
    - The Bank of Baltimore opened a new foot headquarters at Baltimore and Calvert Streets.
    - The Baltimore Gas and Electric Company opens a new substation at Pratt and Concord Streets.
    - The St. Paul Plaza Tower at St. Paul and Lexington streets, containing, opened above the 950-car garage on the lower floors.
    - Baltimore Area Convention and Visitors Association opens a new state-of-the-art office
    - Baltimore Area Visitors Center at 300 W. Pratt Street at Howard Street.
  - 1990s
    - 1990
      - The National Aquarium adds a 1,200-seat Marine Mammal Pavilion
      - Harbor View Yacht Club and sales office opens.
      - Launch of the Columbus Center project on Pier
      - Baltimore Trolley Tours service begins in July.
    - 1991
      - Pier 6 Concert Pavilion opens with its new tent, greatly increasing the seating capacity.
      - Henderson's Wharf opens as a multi-use complex with apartments and hotel rooms and special function space
      - Oriole Park at Camden Yards celebrates its grand opening on April 6, 1992.
    - 1992
      - Light Rail facility starts service from Timonium to Cromwell Station in Glen Burnie.
      - Redwood Garage opens at 300 W. Redwood Street, 720 parking spaces offering.
      - Legal Aid Headquarters opens at Lexington and Gay streets.
      - Ground breaking for the Columbus Center
    - 1993
      - Center Dock Marina opens (124 slips).
      - Ground breaking for American Visionary Art Museum on Key Highway.
      - Grand opening of the City Crescent office building at Baltimore and Howard Streets.
    - 1994
      - Festival Hall demolished to make way for the Convention Centre expansion.
      - World Trade Centre lit with exterior spotlights as part of the BGE program to "Brighten Baltimore".
      - Baltimore Museum of Art to open a new Modern Art Wing in October.
      - Babe Ruth Museum announces its plan to expand into Camden Station.
      - Top of the World begins major renovation.
      - Baltimore Harbor Endowment begins selling personalized bricks to finish a 7.5-mile Promenade around the Inner Harbour from Waterfront Park in Canton to the Museum of Industry in South Baltimore.

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	▪ 1995	▪ American Visionary Art Museum opens
	▪ 1996	▪ NFL approves move of Cleveland Browns to Baltimore. Groundbreaking for \$200 million football stadium. ▪ City Life Museums opens Morton K. Blaustein City Life Exhibition Center
	▪ 1997	▪ Hard Rock Cafe opens in the Power Plant in Baltimore's Inner Harbor. ▪ The Baltimore Convention Center expansion is completed. The BCC triples its size to 1.2 million total square feet, 116,000 square feet of meeting space including a 36,600 square foot ballroom and 50 meeting rooms.
	▪ 1998	▪ PSINet Stadium, home of the Baltimore Ravens, opens. ▪ ESPN Zone, the world's first, opens in Power Plant. ▪ Planet Hollywood opens in Harborplace. ▪ Port Discovery, the kid-powered museum, opens. ▪ The first annual Waterfront Festival is launched in conjunction with Whitbread
	▪ 1999	▪ National Historic Seaport opens ▪ U.S.S. Constellation returns to its berth at Pier 1 after undergoing major restoration.
	▪ 2000	▪ Courtyard by Marriott opens in Inner Harbor East. ▪ Tall Ships from around the world visit Baltimore. ▪ Baltimore hosts annual Army - Navy football game at PSINet Stadium.
2000s	▪ 2001	▪ Marriott Waterfront hotel opens. ▪ Power Plant Live! opens.
	▪ 2002	▪ Discovery Channel Duck open land/sea tour of Baltimore.
	▪ 2003	▪ <i>Visitor's Information Centre open</i>
	▪ 2004	▪ <i>Aquarium extension</i>

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Source: Baltimore Area Convention and Visitors Association (2002). Italic items have been added by the author.

### 6.1.7 Conclusions for historical analysis

The striking and successful transformation of the Inner Harbour into a world cultural destination was a unique example in the era of first generation of waterfront redevelopments in the 1960s. Its success provided many useful lessons for future waterfront redevelopment initiatives. The analysis of the historical evolution of the Inner Harbour provided valuable findings. Key findings from the analysis clearly demonstrate how the successful private/public partnerships, political leadership, strategic planning process and design approach have shaped the current spatial/functional structure of the waterfront. In addition, they provided illustrative and qualitative evidence about the transformation process that created the current cultural waterfront from its roots. Figure 6.23 summarises and categorises the redevelopment process depending on the time, with descriptions of major change. Finally, Figure 6.24 details the formation of the built environment in the case study area from 1969 to the present, demonstrating its spatial location in the context of the waterfront and the downtown area.

#### Redevelopment process

One of the important findings concerns the redevelopment process which spans the last 40 years from the acceptance of the Inner Harbour master plan in 1963. The process is characterised by a 'step by step', 'long-term', and 'incremental' approach to creating the current built environment. In addition, the 'small-scale' redevelopment of the Inner Harbour waterfront could respond to the needs of the times and changing economic and socio-cultural conditions during each redevelopment stage (Figure 6.22). As a result, the image of the

waterfront was the result of many different types of buildings (CG I to VII buildings) that became an important foundation for cultural uses and activities. In particular, ‘incremental approach’(Alexander, 1975), which describes the formation of various types and functions of buildings in the redevelopment process over a long period, is identified as an important approach.

### **People-oriented and public vision of the waterfront**

The most important factor in creating the current cultural waterfront was the vision of the public use of the waterfront that was maintained during the overall process, but especially during the initial planning stages in the 1960s. The vision was backed by highly sophisticated and detailed design guidance with regulations on the built environment. In addition, consistent and strict design control, which was supported by prestigious specialist groups with political support was maintained during the redevelopment process. The concept of public use of the waterfront was clearly demonstrated in the Inner Harbour master plan and was implemented accordingly. “The plan’s basic mandate was to restore access to and enjoyment of the water to the people of the city” (Millspaugh, 2003: 37). Public use of the waterfront drew people of different races, ages and socio-culture backgrounds. Without a doubt, people were an important asset in creating a cultural ambience. Consequently, the public vision of the waterfront spaces, combined with the physical organisation of the built environment, led to the long-term success of the cultural waterfront.

### **Catalytic cultural facilities and various building types**

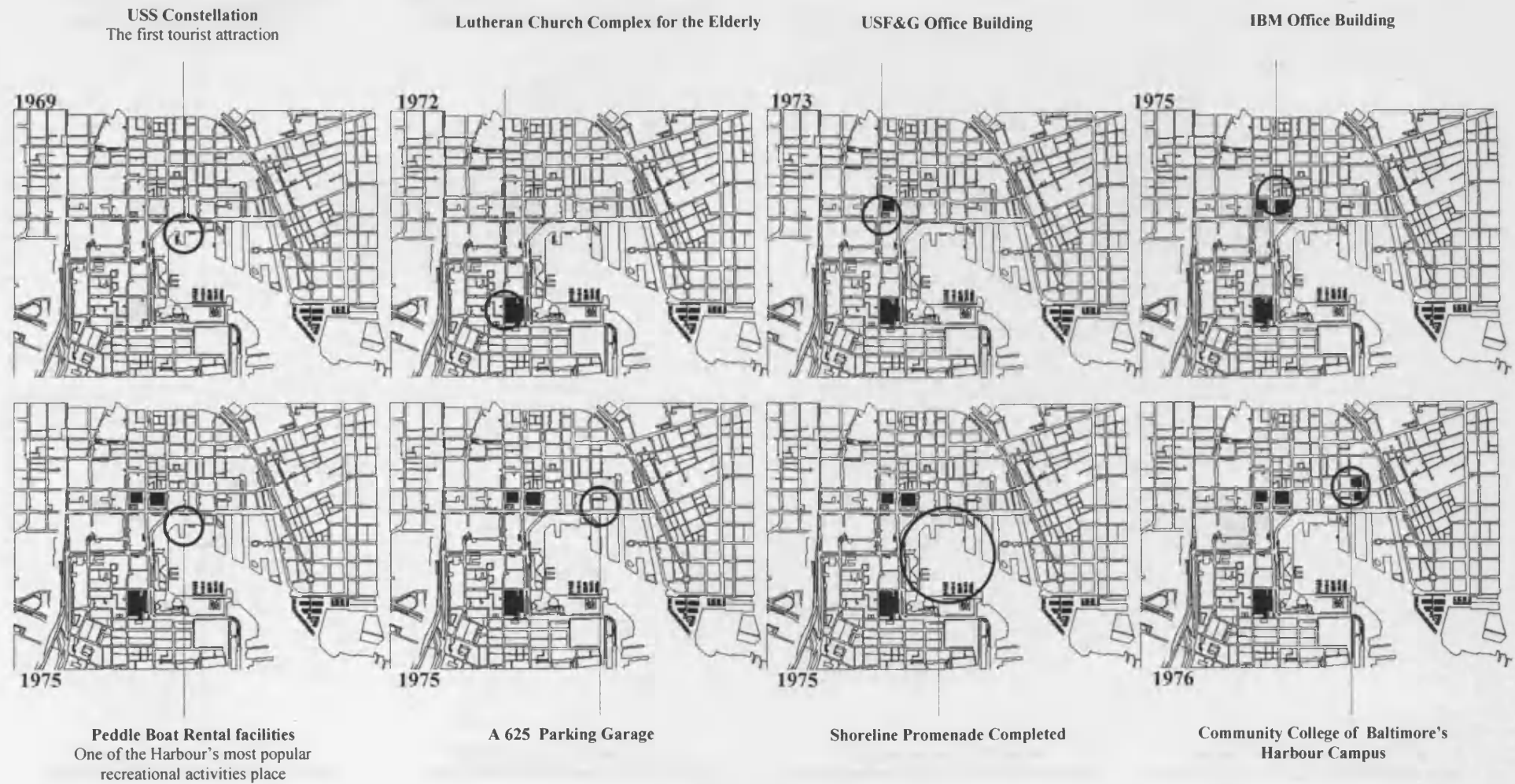
The Inner Harbour has world renowned cultural facilities, especially the CGI buildings (major cultural facilities), such as the Aquarium, the Science Centre, and the Maritime Museum. At the same time, various types of buildings, such as eating, shopping, commercial, hospitality, entertainment and residential, coexist near to the water generating different users and activity patterns throughout the day. As the previous section described, the major catalytic cultural facilities, such as the Aquarium, the Science Centre, the Powerplant, the Maritime Museum, and the Public Works Museum, provided a foundation to transform the image of the waterfront from a local public domain to a world-class cultural waterfront. It can be said that the redevelopment of the waterfront with quality landmark buildings and cultural functions succeeded in creating a cultural image. In addition, the existence of various types of CG I buildings, and leisure and entertainment facilities in the water surface realm such as tall ships, boats, water taxi, marina and submarine, functioned like floating cultural facilities, providing a unique waterscape.

Figure 6.23: The detail of the Inner Harbour redevelopment process from the 1950s to the 2000s

Period		Major task	Key elements	Achievement & influence
Growth decline and abandonment	■ Growth decline and abandoned period			
1960s	■■ The preparation of the public use of the waterfront period	<ul style="list-style-type: none"> <li>Revitalising the decaying inner city</li> <li>Charles Centre development (1959)</li> <li>The preparation of the Inner Harbour Renewal Plan (1963). The Inner Harbour Plan put high priority on public accessibility and the concept of local gathering places</li> <li>Acquisition &amp; clearing the rundown waterfront (1968)</li> </ul>	<ul style="list-style-type: none"> <li>hotels, offices, department stores, retail premises, apartments in Charles Centre forming urban business centre in the centre of city</li> <li>Provision of 35 foot waterfront promenade</li> <li>And open spaces along the water edge</li> <li>Installation of USS Constellation at Pier 1</li> </ul>	<ul style="list-style-type: none"> <li>Award-winning urban renewal project (Charles Centre redevelopment)</li> <li>The waterfront space dedicated to public use as a local playground</li> <li>Formed the current waterfront shoreline</li> </ul>
1970s	■■■ Renaissance begins Animating the waterfront public space through events period	<ul style="list-style-type: none"> <li>Revitalisation of the Inner Harbour through creating a festival venue</li> </ul>	<ul style="list-style-type: none"> <li>'Sunny Sundays' do-it-yourself leisure pursuit (1970)</li> <li>'City Fair' moves from Charles Centre to the Inner Harbour</li> </ul>	<ul style="list-style-type: none"> <li>Realisation of a venue for festivals</li> <li>Creation of festival organisation</li> <li>Become focal point of local social and cultural gathering place</li> </ul>
1980s	■■■■ Renaissance on track Key catalytic building construction period		<ul style="list-style-type: none"> <li>Catalytic building construction period (Convention Centre, Harbourplace, Aquarium, Hyatt Hotel)</li> <li>Rouse Company's notion of festival marketplace moves into the Inner Harbour</li> </ul>	<ul style="list-style-type: none"> <li>Historic success of the Harbour place as festival market place</li> <li>annual visitor numbers topped 20 million in the late 80s</li> <li>The critical mass formed to revitalise the waterfront</li> </ul>
1990s	■■■■■ Another Renaissance begins Sustaining the success period		<ul style="list-style-type: none"> <li>development on the south and east side of Charles Centre</li> </ul>	<ul style="list-style-type: none"> <li>Hotel to accommodate increase in visitor numbers</li> <li>Office development to boots the local economy - seven hotels constructed between 1981-1987</li> </ul>
2000s	■■■■■ New Millennium Expanding the success further down	<ul style="list-style-type: none"> <li>world-class waterfront cultural quarter</li> <li>development on the west side of the Inner Harbour</li> </ul>	<ul style="list-style-type: none"> <li>continuing socio-cultural and commercial development</li> <li>Creating more improvement for the sense of a cultural waterfront quarter: similar development pattern to Phase IV</li> </ul>	

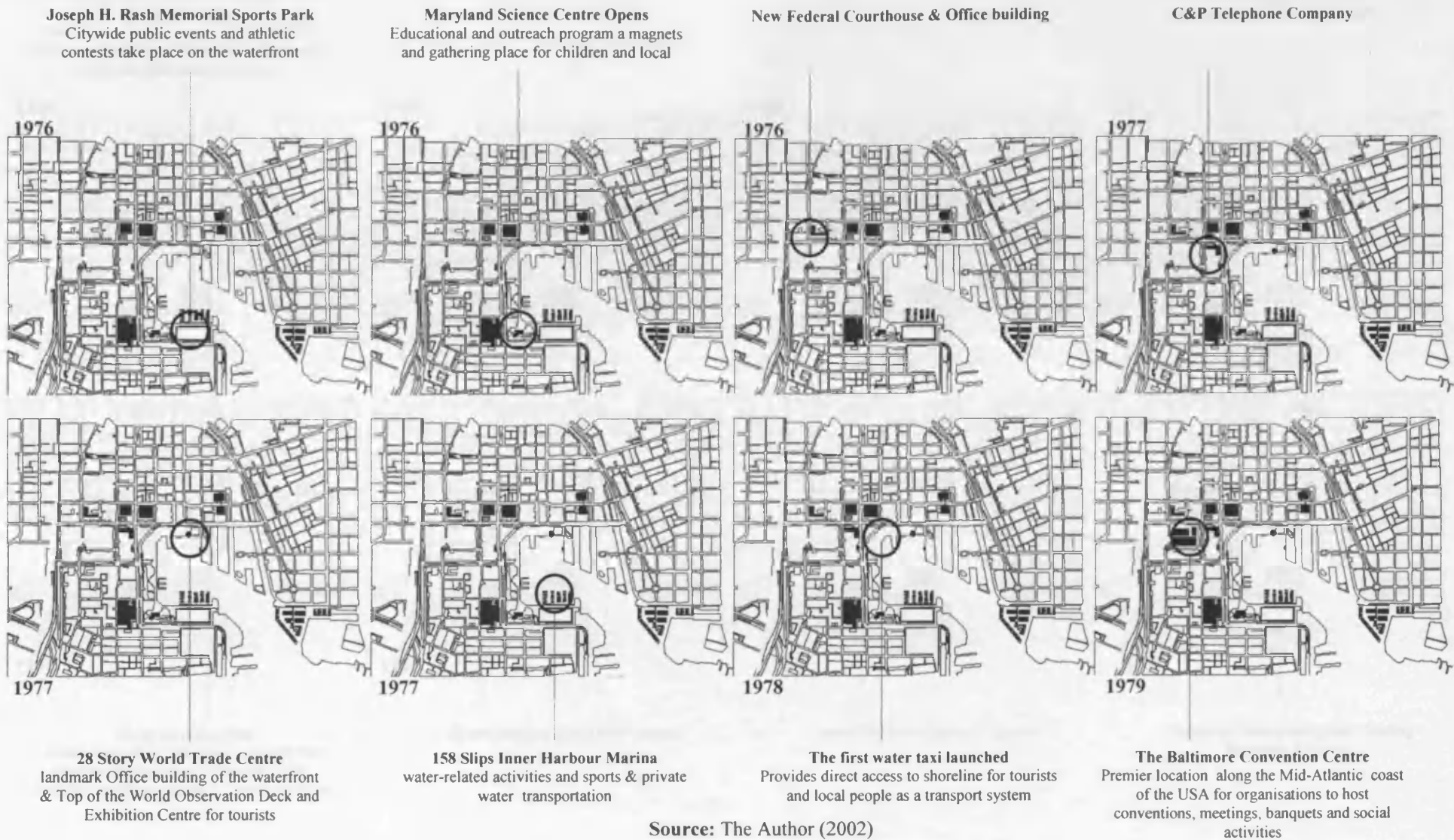
Note: The contents in the table are summarised from City and Port (Meyer, 1999:262-266), Baltimore transitions (Miller, 1998), Baltimore Harbour (Keith, 1991), Millspaugh (1993, 2001, 2003) and the author's summarised description.

**Figure 6.24: Formation of the built environment on the Inner Harbour waterfront**



Source: The Author (2002)

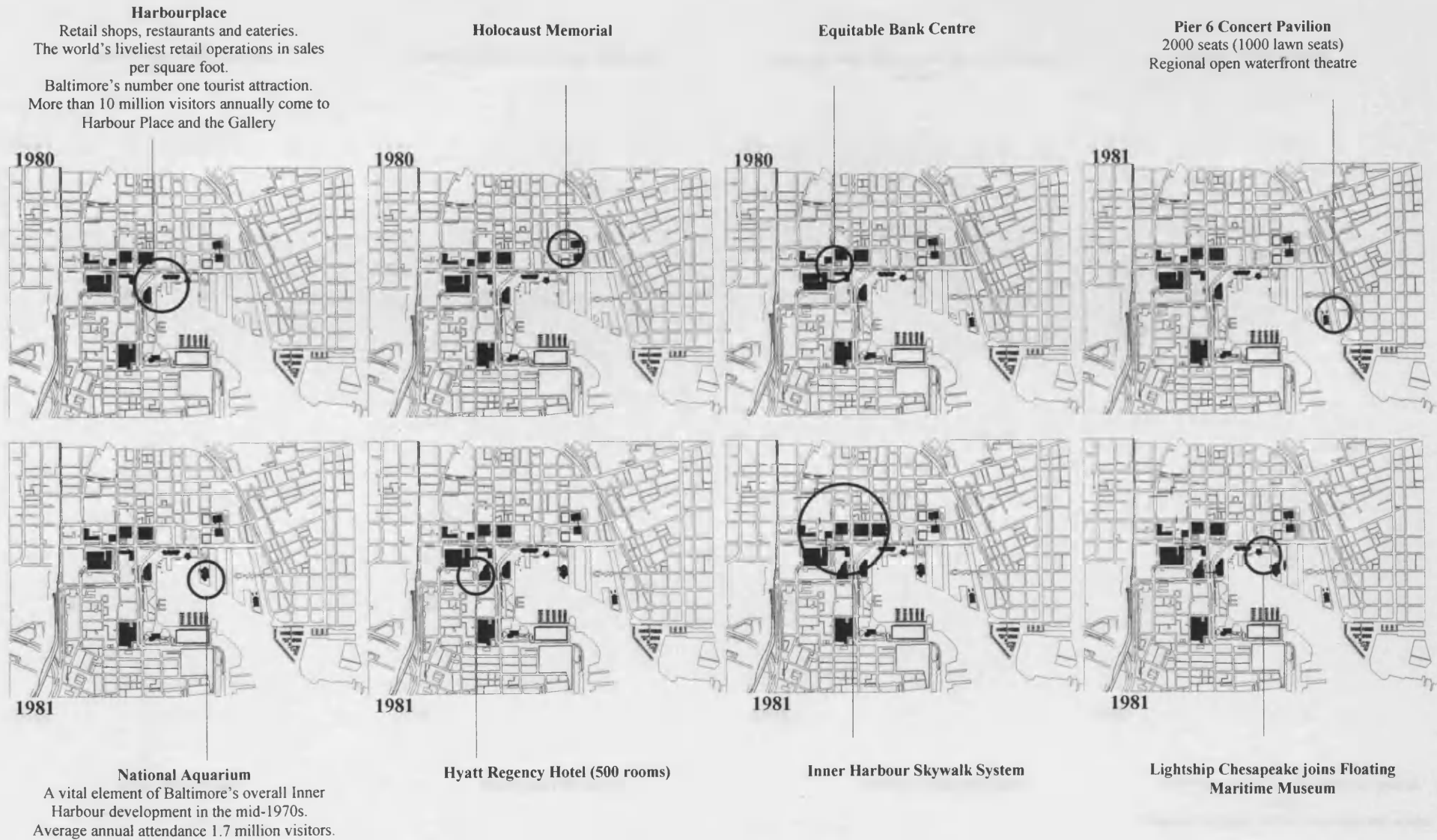
**Figure 6.24: Formation of the built environment on the Inner Harbour waterfront (continued)**



Source: The Author (2002)

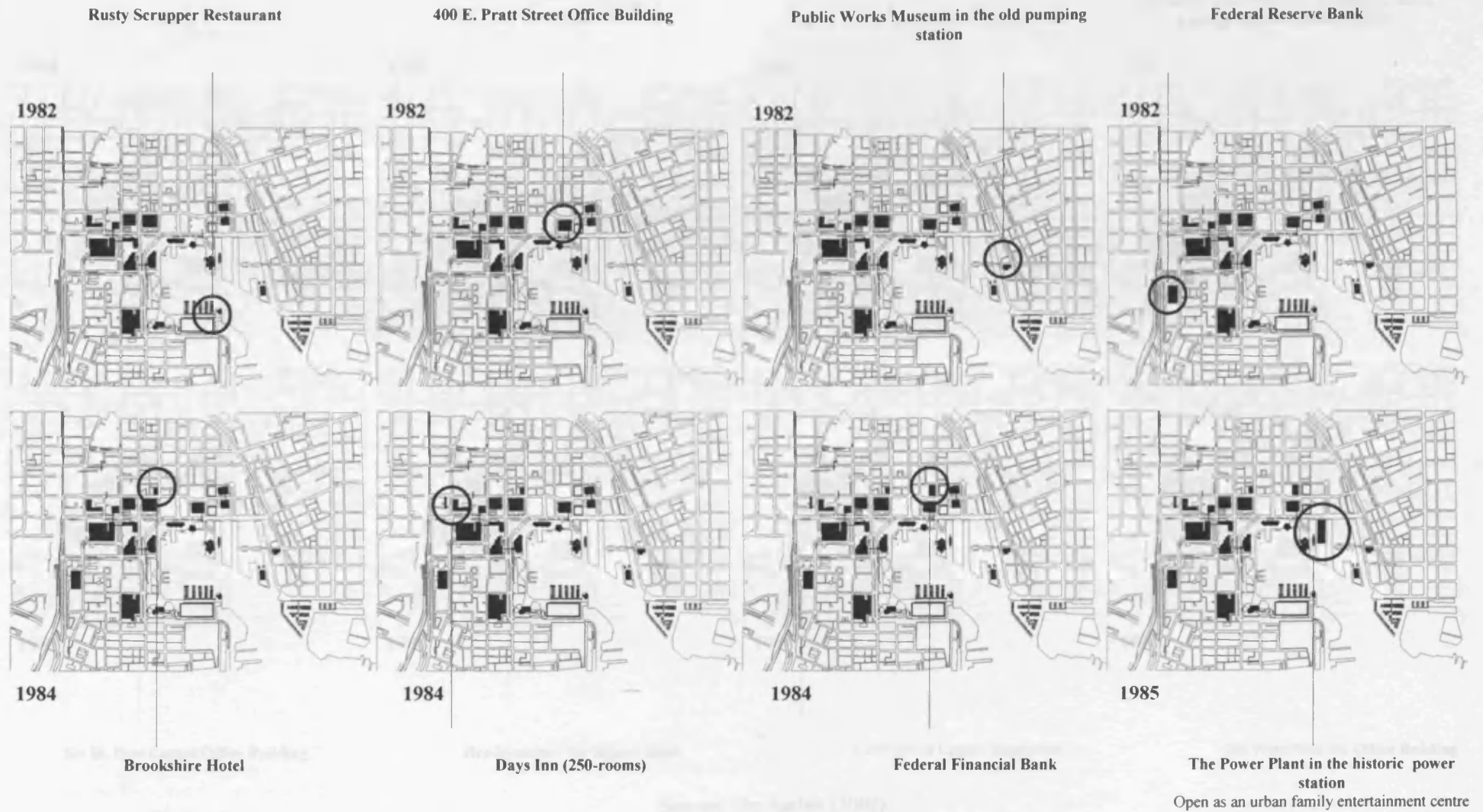


**Figure 6.24: Formation of the built environment on the Inner Harbour waterfront (continued)**



Source: The Author (2002)

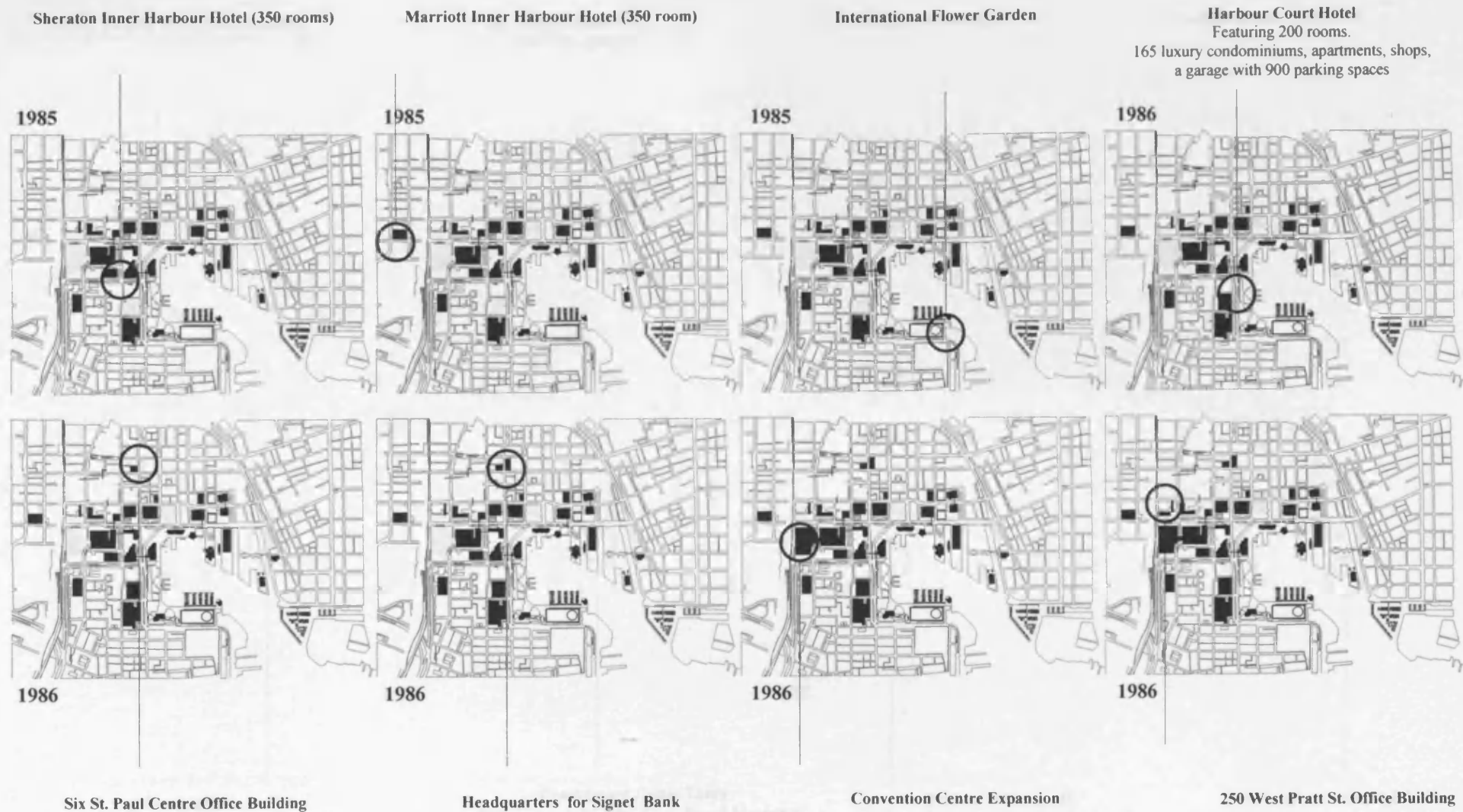
Figure 6.24: Formation of the built environment on the Inner Harbour waterfront (continued)



Source: The Author (2002)

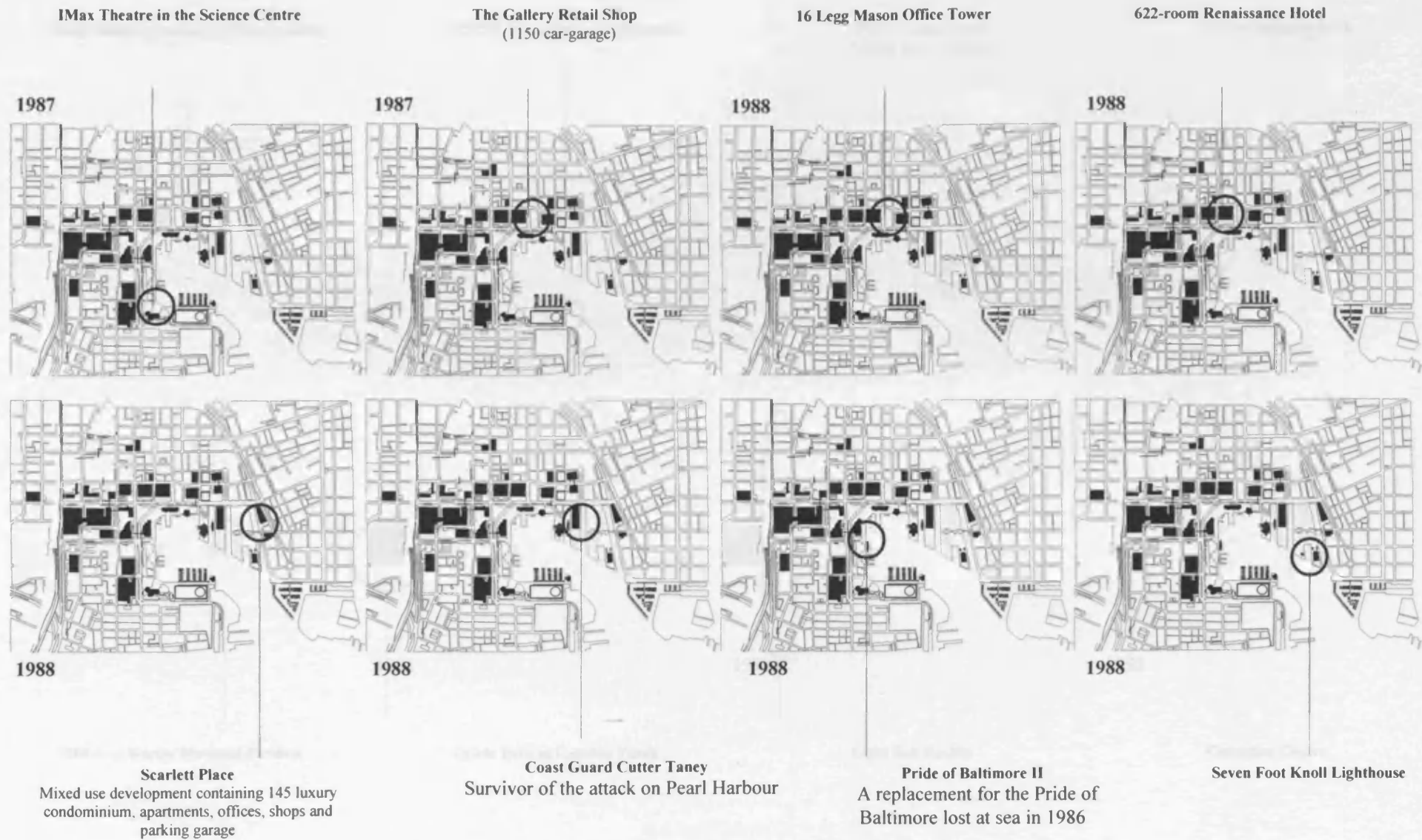


**Figure 6.24: Formation of the built environment on the Inner Harbour waterfront (continued)**



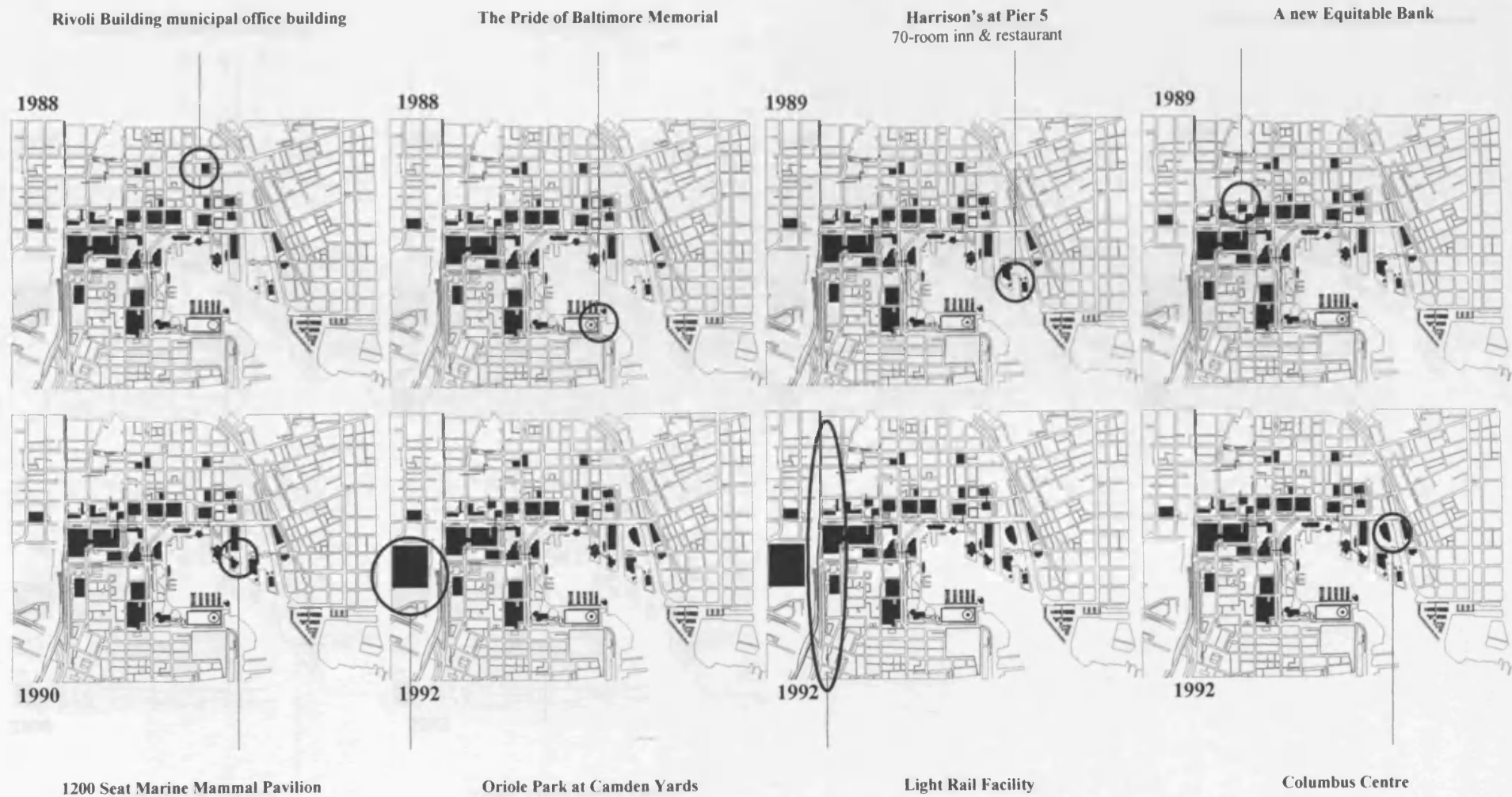
Source: The Author (2002)

**Figure 6.24** Formation of the built environment on the Inner Harbour waterfront(continued)



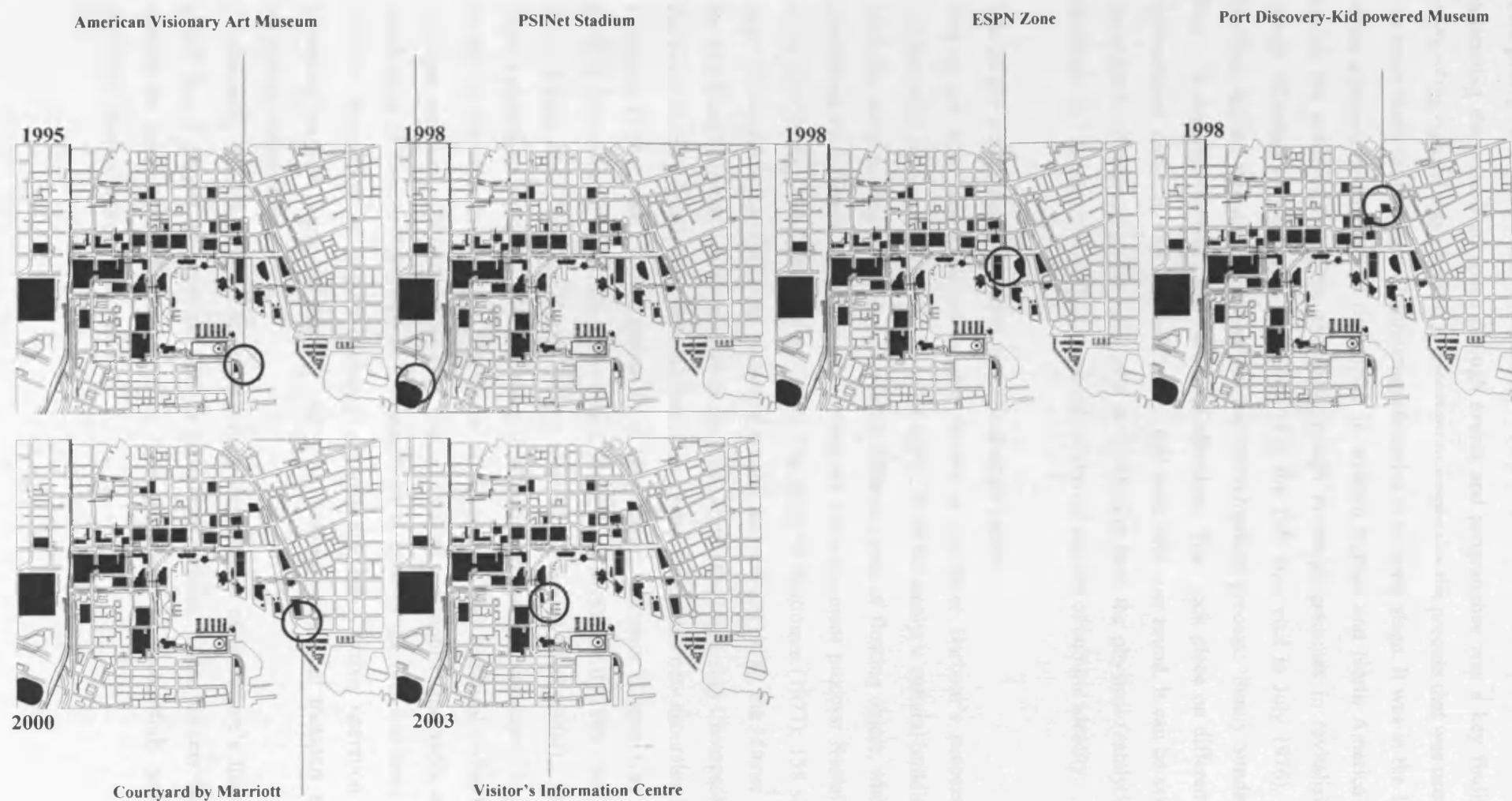
Source: The Author (2002)

Figure 6.24: Formation of the built environment on the Inner Harbour waterfront (continued)



Source: The Author (2002)

Figure 6.24: Formation of the built environment on the Inner Harbour waterfront (continued)



Source: The Author (2002)

### **The policy to animate the waterfront**

Animating the waterfront space through events and programmes was a key finding in the study of the cultural waterfront. It is important to emphasise the process that was used because the Inner Harbour made use of animating strategies at an early stage. It was in the 1980s that urban planners, architects and developers in western Europe and North America began to realise the value of intangible elements through events/programmes in revitalising urban spaces. Whether or not it was by chance (e.g. the Tall Ship visit in July 1976), the Inner Harbour applied this strategy throughout the redevelopment process: 'Sunny Sundays', 'City Fair', 'Waterfront Festival', and Festive Marketplace. They took place on different scales – international, national, city wide and local – and were held year round. It can be said that the Inner Harbour redevelopment succeeded in developing both the physical (catalytic cultural facilities) and the non-physical (indoor/outdoor events) aspects of cultural identity.

### **Use of the water surface realm as a fluid open space**

One of the most distinctive and unique factors in the Inner Harbour's success was the maximisation in the use of the water surface realm. With the catalytic cultural buildings on the land, the water surface realm accommodated different types of floating object, which can be considered by different building types, during the redevelopment process: Rental Paddling boats (1975); the USS Constellation (1969); The Pride of Baltimore (1977); 158 slips in the Inner Harbour Marina (1977); the launch of a water taxi service (1978); the Minnie V (1981); the Maritime Museum, which consists of the USS Torsk, the Light ship Chesapeake (1981), the Seven Knoll Lighthouse (1988) and the Coast Guard Taney; the new excursion boat Lady Baltimore (1984); the 150-foot replica of a 19th century schooner Clipper City (1985); a floating classroom on Lady Baltimore (1986); the Pride of Baltimore II (1988); the Tall Ships event; launch of the land/sea navigation boat Discovery Channel Duck (2000). The floating objects played an important role in creating vitality and an exotic waterscape. They attracted people to the waterfront. First, installation of the unique and historical collection in the maritime museum with historic tall ships created floating and mobile landmarks, and gave a great sense of historic continuity to the waterfront in spite of the fact that there had been massive demolition of historic buildings around the area. Active operation of water transportation also supported tourism and worked along with local transport to connect waterfront communities.

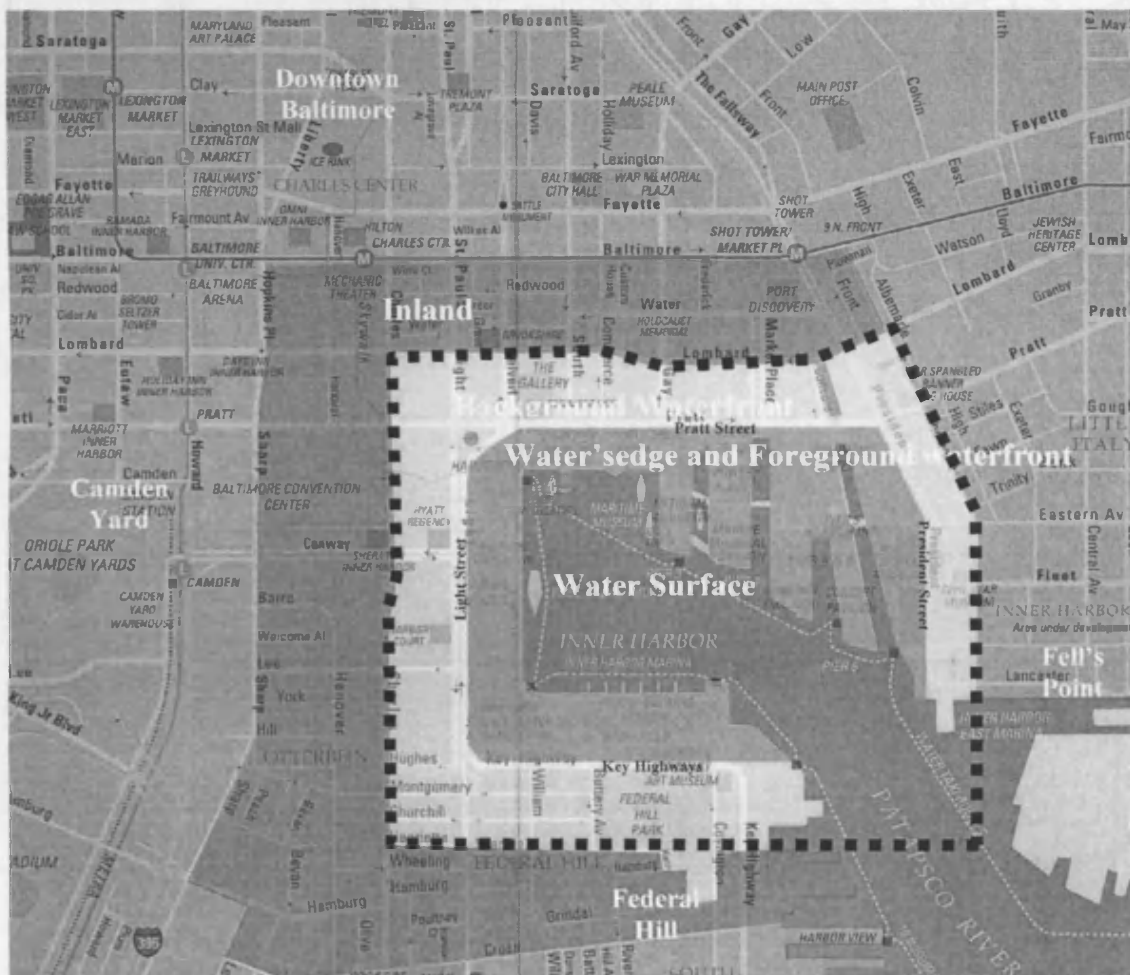
To conclude, the examination of the historic transformation of Baltimore's Inner Harbour shows that it played an important role in the current success. These success factors have shaped the current waterfront space over time enabling it to successfully accommodate culturally oriented activities and uses.

## 6.2 Mapping the current waterfront's built environment

### 6.2.1 The scope of the case study area

In this section, three components of the built environment in the case study area – buildings, open spaces and historical artefacts – are examined and mapped out. Based on the five realms of waterfront space which was described in chapter 3 (Figure 3.20), the case study area is divided in the same way (Figure 6.25). The current waterfront's built environment is mapped for each realm in the next section.

Figure 6.25: The division of the case study areas into five realms



Note: Based on Baltimore Street Wise Map

### 6.2.2 Mapping the current built environment

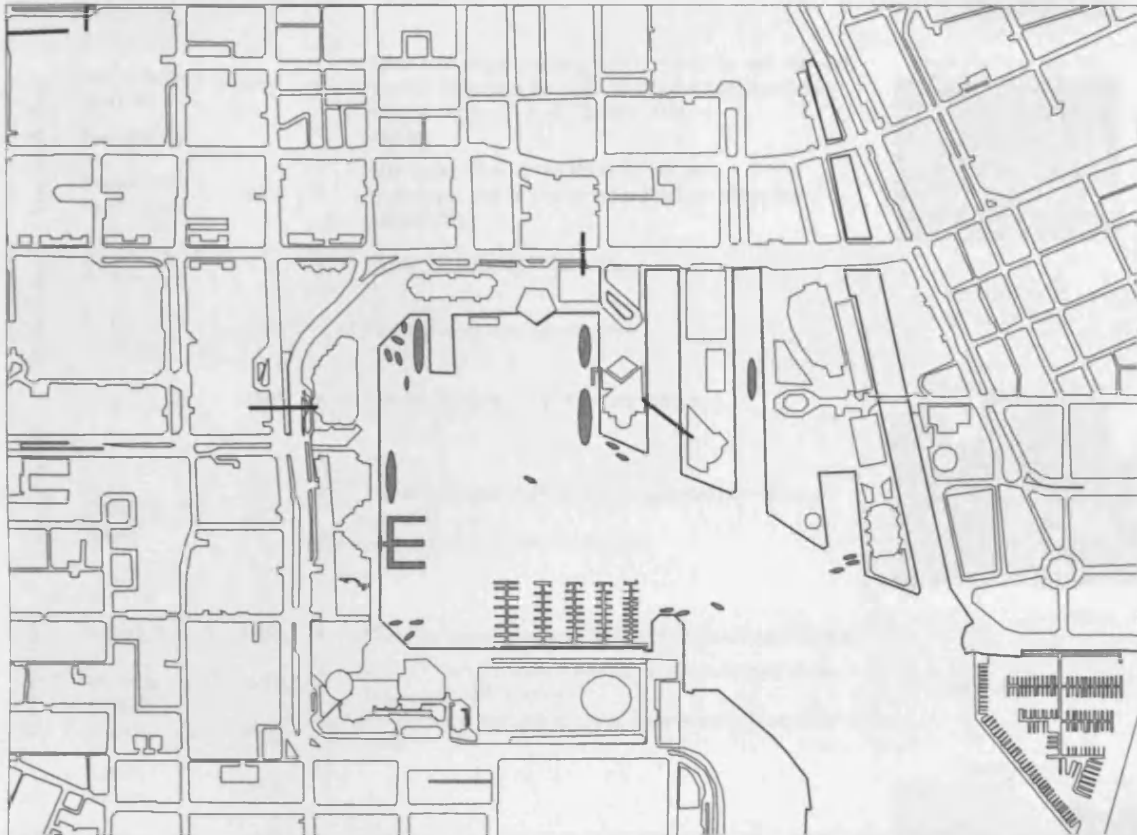
#### 6.2.2.1 The water surface realm

The water surface realm in the case study area consists mostly of floating objects such as ships, boats, tall ships, marina, water taxi, and the maritime museum (Figure 6.26). Although floating objects have different characteristics compared to buildings on land, they function like the built environment. If there is a distinctive difference, it is that floating objects are not





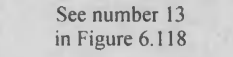

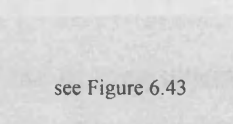

static but mobile and dynamic. It can be said that they are part of the built environment, constructed (or located) on the water surface.

**Figure 6.26:** The built environment in the water surface realm



**Figure 6.27:** The detail of the built environment in the water surface realm

Floating Objects		Feature and role	Picture
Maritime Museum	USS Constellation 1969	<ul style="list-style-type: none"> <li>launched in 1853 and decommissioned in 1933 for preservation as a naval relic</li> <li>Moved to Baltimore in 1969 as a historic shrine</li> <li>Became the first tourist attraction located at the Inner Harbour</li> </ul> <p>Source: <a href="http://www.baltomaritimemuseum.org">www.baltomaritimemuseum.org</a></p>	
	USS Torsk (submarine) 1972 Relocated 1992	<ul style="list-style-type: none"> <li>Served during World War II. In 1972, became a museum and memorial</li> <li>National historic landmark</li> </ul> <p>Source: <a href="http://www.baltomaritimemuseum.org">www.baltomaritimemuseum.org</a></p>	
	Coast Guard Cutter Taney 1988	<ul style="list-style-type: none"> <li>Survivor of the attack on Pearl Harbour</li> <li>Served as coast guard ship</li> <li>Decommissioned in 1986 and became National Historic Landmark (1988)</li> </ul> <p>Source: <a href="http://www.baltomaritimemuseum.org">www.baltomaritimemuseum.org</a></p>	
	Lightship Chesapeake 1988	<ul style="list-style-type: none"> <li>Started as a Lightship (1933) at the entrances to Chesapeake and Delaware Bays</li> <li>National historic landmark</li> <li>Part of Baltimore Maritime Museum (1988)</li> </ul> <p>Source: <a href="http://www.baltomaritimemuseum.org">www.baltomaritimemuseum.org</a></p>	

Cruise Service	Pride of Baltimore	1977	<ul style="list-style-type: none"> <li>Launched 19<sup>th</sup> century replica of the Baltimore Clipper</li> </ul>	 <p>Lady Baltimore</p>
	Lady Baltimore	1984	<ul style="list-style-type: none"> <li>600 passenger showboat-a new excursion boat</li> <li>specialising in luncheon and dinner cruises</li> </ul>	
	Prince Charming			
	Bay Lady		<ul style="list-style-type: none"> <li>Cruise service</li> </ul>	
Marina & Piers	Duchess of Pintail			 <p>Inner Harbour Marina</p>
	Inner Harbour Marina	1977	<ul style="list-style-type: none"> <li>Offers boat slips, drinking water, electricity and showers</li> <li>Provides boat slips for daily rentals for transient boaters</li> </ul>	
	East marina		<ul style="list-style-type: none"> <li>Marina</li> </ul>	
Education	Seawall and Finger Piers	1977	<ul style="list-style-type: none"> <li>First-come, first-served basis for boaters</li> <li>Boaters can pull in and travel to Harbour place and promenades</li> </ul>	 <p>See number 13 in Figure 6.118</p>
	Mildred Belle Sigsbee		<ul style="list-style-type: none"> <li>Living Classrooms Foundation</li> </ul>	
Entertainment	Lady Maryland	1986	<ul style="list-style-type: none"> <li>Floating classroom for students</li> </ul>	 <p>Paddling Rental Boat</p>
	City Clipper	1985	<ul style="list-style-type: none"> <li>150-foot replica of 19<sup>th</sup> Century schooner</li> </ul>	
	Paddling boat Rental	1975	<ul style="list-style-type: none"> <li>Has become the Harbour's most popular recreational activities spot</li> </ul>	
Transportation			Source: Author (12:27 19 <sup>th</sup> June 2004)	 <p>see Figure 6.43</p>
	Minnie V.	1981	<ul style="list-style-type: none"> <li>Operates tours from near the Harbourplace Amphitheatre</li> </ul>	
	Harbour Boating & Water Taxi	1978 (taxi)	<ul style="list-style-type: none"> <li>Serving over 35 attractions and neighbourhoods in the Inner and Outer Harbour</li> <li>Speedy water transportation and opportunity to see the vista</li> </ul>	
Event day	Ciscne Branco	2000		 <p>Ciscne Branco</p>
	Mircea	1938	<ul style="list-style-type: none"> <li>Tall Ships events for the Fourth July Sailabration</li> </ul>	
	Sagres	1938	Source: Author (14:01, 30 June 2004)	
	Cuouhtemoc	1982		

**Note:** Descriptions and some pictures were adapted from 'Baltimore Harbour' (Keith, 1991), [www.baltomaritimemuseum.org](http://www.baltomaritimemuseum.org), and Author's additions.

For example, water surface works like open space. The piers and marinas are an extension of the pedestrian street. The waterway is to water taxis what roads are to cars. Historic ships are installed at the water's edge and the maritime museum operates buildings and facilities on land. Cruise ships provide eating and entertainment facilities and accommodation. Even though the scale, the way in which they relate to people, their appearance and the materials of the floating objects are different compared to that of the built environment on land, floating objects located on the water can be considered part of the wider built environment that forms a 'waterscape', just as the physical objects on land form a 'townscape' (Figure 6.28). Thus, the 'waterscape' can be defined by floating and anchored objects 'over', 'on', and 'beneath' of the water surface realm including the water itself.



**Figure 6.28:** An example of the ‘waterscape environment’ in the case study area: piers extending into the water as an extension of the promenade. The replica of a 19<sup>th</sup> Century City Clipper in the foreground provides a historic landmark in the water. Cruise ships in the background are water transportation and entertainment/leisure facilities.



Key characteristics of the waterscape in the case study area, especially the floating objects, comprise a number of different functions, such as transportation, entertainment, maritime museum, education, and leisure. Interestingly, apart from transportation (e.g. water taxi, and cruise ships), the majority of the floating objects were unique ‘historical artefacts’ (Figure 6.27). Although they no longer perform their original functions, they are still operational in a different way. The combination between modern usage of historical floating objects and preservation of their historical value is an important aspect of their popularity. The vivid contrast of the old and the new waterscape allows for a diverse experience. For example, the adaptive reuse of the historical ships into a maritime museum encompasses museum, historical artefacts, entertainment (e.g. camping on ship), and mobile landmark.

#### **6.2.2.2 The water’s edge realm**

Due to the emphasis on public use of the waterfront and accessibility to the water in the early redevelopment stage, the realm of the water’s edge in the case study area was characterised by the continuous and ample width of waterfront promenade. In addition, the geographical shape of the four-sided water’s edge and the different types of built environment along the water’s edge resulted in four different physical and functional settings. Four different water’s edge realms created four different types of waterfront promenade along the water edge as follows: 1) Key Highway promenade; 2) Light Street promenade; 3) Pratt Street promenade: and 4)

President Street promenade (Figure 6.29). Each promenade had different functional and spatial characteristics because it faced a different part of the hinterland and water's edge.

**Figure 6.29:** Four different physical and functional zones in the water's edge realm







Note: Based on the map provided by Baltimore City Planning Department (2003)

Figure 6.30 shows the physical characteristics of each water's edge and its key functions along the waterfront promenade. The physical traits of each waterfront promenade tremendously affects the usage patterns, activities and setting of buildings along the waterfront. For example, compared to other promenades, Pratt Street has the most complicated water's edge because of the construction of the engineered piers for industrial purposes in the past. Five former industrial piers, long and narrow, forming a canal-like water's edge, provides an interesting physical setting for various uses. The elongated water's edge with promenade became an important foundation to create gatherings, activity and pedestrian flow and the various physical setting of buildings. Furthermore, the four promenades have unique characteristics depending on the type of building in the foreground waterfront realm, background waterfront realm, inland waterfront realm of the built environment and waterscape. Finally, the most important characteristic of the water's edge is the direct contact it has with the water and the continuity of the public waterfront promenade.

Source: Author (2004)

**Figure 6.30:** The physical/functional characteristics of the waterfront promenade in the water's edge realm

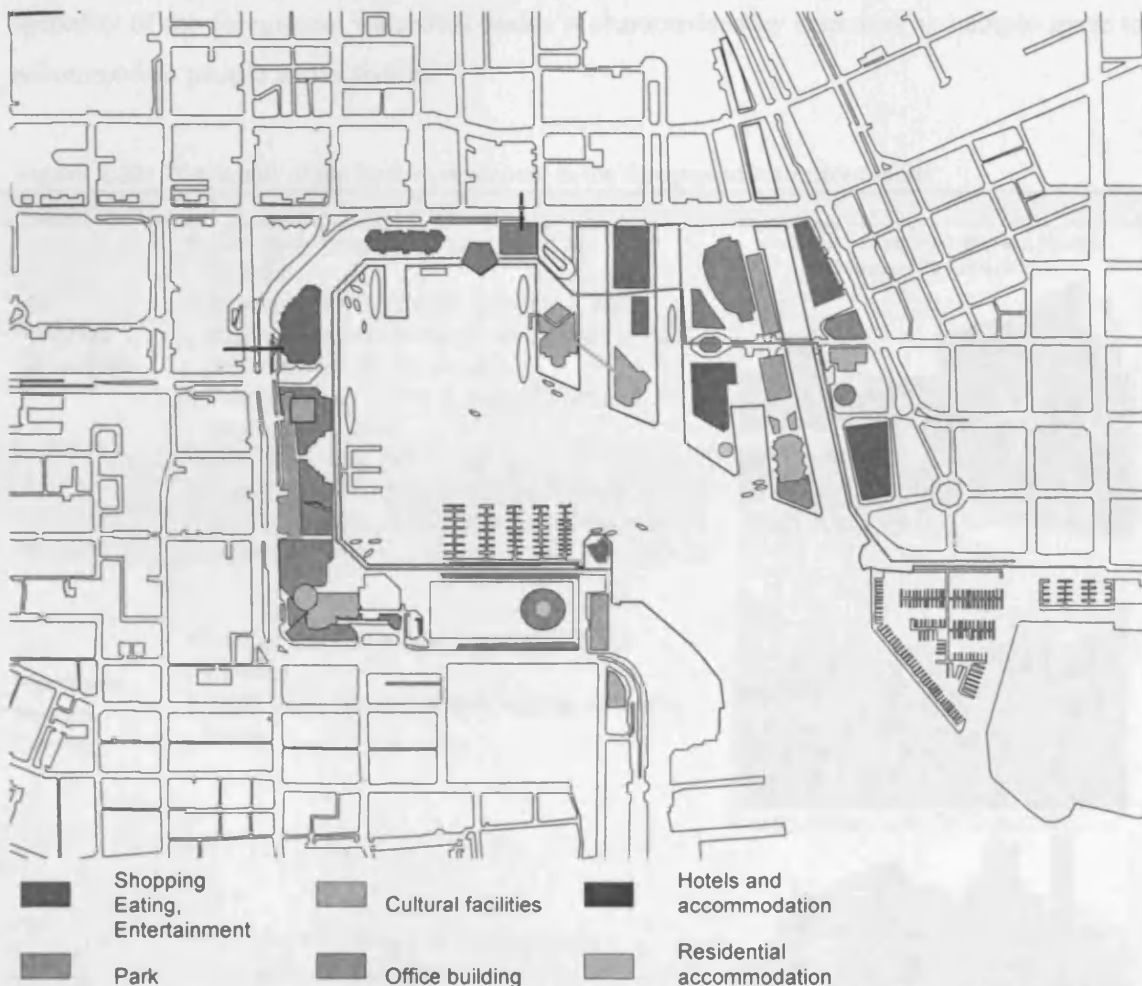
promenade	picture	physical	functional
<b>Light Street waterfront promenade</b>		<ul style="list-style-type: none"> <li>▪ straight linear promenade</li> <li>▪ direct contact with water's edge</li> </ul>	<ul style="list-style-type: none"> <li>▪ Relaxing, strolling</li> <li>▪ Entertainment</li> </ul>
<b>Pratt Street waterfront promenade</b>		<ul style="list-style-type: none"> <li>▪ engineered edge</li> <li>▪ Five Pier structure</li> <li>▪ direct contact with water's edge</li> <li>▪ pedestrian bridges become an important part of the promenade</li> </ul>	<ul style="list-style-type: none"> <li>▪ Entertainment, leisure, shipping and educational promenade</li> <li>▪ Pier structure elongated the length of the water's edge for various activities</li> </ul>
<b>Key Highway waterfront promenade</b>		<ul style="list-style-type: none"> <li>▪ straight linear promenade</li> <li>▪ direct contact with water's edge</li> <li>▪ openness between water surface and foreground waterfront</li> </ul>	<ul style="list-style-type: none"> <li>▪ Waterfront green park &amp; residential promenade</li> <li>▪ Users – mainly local people</li> </ul>
<b>President Street waterfront promenade</b>		<ul style="list-style-type: none"> <li>▪ straight linear promenade</li> <li>▪ direct contact with water edge</li> <li>▪ narrow promenade compared to others</li> </ul>	<ul style="list-style-type: none"> <li>▪ Residential and hotel promenade</li> </ul>

Source: Author (2004)

### 6.2.2.3 The foreground waterfront realm

In many respects, the foreground waterfront realm is the most critical waterfront area because it accommodates various different building types, from Cultural Grade I (CG I) to Cultural Grade VII (CG VII). In particular, major cultural facilities (Cultural Grade I buildings), such as the Aquarium, the Maryland Science Centre, the Pier 6 Concert Hall, the Public Works Museum, and the American Visionary Museum are located in this realm, with good physical, visual and psychological accessibility. In addition, different types of buildings from CG II to VII are integrated into the foreground waterfront realm with the major cultural facilities (CG I buildings) providing diverse functionality. The cultural grade buildings and their location are as follows (Figure 6.31 and 6.32).

**Figure 6.31:** The built environment and its location in the foreground waterfront realm

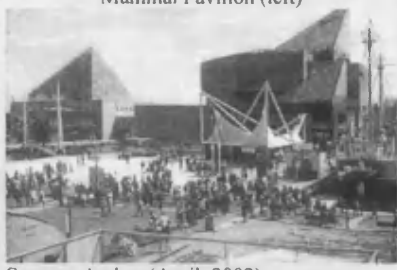




- **CG I (major cultural infrastructure):** American Visionary Museum, Maryland Science Centre, National Aquarium, Marine Mammal Museum, Concert Pavilion, Public Work Museum, Top of the World and Visitor Information Centre

- **CG II (leisure and Entertainment):** ESPN Zone, Powerplant, Harbourplace
- **CG III (eating):** Harbourplace, Rusty Scupper, Harrison's at Pier 5
- **CG IV (shopping):** Harbourplace, Powerplant
- **CGV (hospitality):** Harrison's Inn, Scarlett Place, Courtyard by Marriott
- **CGVI (working):** World Trade Centre, Columbus Centre, Dockmaster,
- **CG VII (residential):** Scarlett Place

Apart from the cultural facilities, the foreground waterfront realm has 20 activity nodes (Figure 6.45) consisting of open spaces, parks and the promenade. An effective, accessible and people-friendly network of open spaces, squares and parks combine with various types of cultural facilities to enhance the quality of the waterfront space for cultural uses. In addition, as shown in the 'figure/ground analysis' of the case study area (Figure 6.36), the overall spatiality of the foreground waterfront realm is characterised by openness and ample space to accommodate people and activities.

**Figure 6.32:** The details of the built environment in the foreground waterfront realm

Building	Function	
1981 <b>National Aquarium</b>	<ul style="list-style-type: none"> <li>▪ The most important landmark of the inner harbour</li> <li>▪ Its architecture, exhibits, programs and management structure are considered to be a prototype for the aquarium</li> <li>▪ Functioned as cultural, recreational and educational venue</li> </ul>	<p>National Aquarium(right) and Marine Mammal Pavilion (left)</p>  <p>Source: Author (April, 2002)</p>
1990 <b>Marine Mammal Pavilion</b>	<ul style="list-style-type: none"> <li>▪ Commenced in 1987</li> <li>▪ A part of the expansion of the National Aquarium with additional classrooms and exhibition hall</li> </ul>	
1976 <b>Maryland Science Centre</b>	<ul style="list-style-type: none"> <li>▪ One of the first public attractions in the harbour</li> <li>▪ 1988 Imax Theatre added because of tourist boom</li> </ul>	 <p>Source: Author (10:16, 23<sup>rd</sup> June, 2004)</p>
1982 <b>Public Works Museum</b>	<ul style="list-style-type: none"> <li>▪ Was (1911) sewage pumping station</li> <li>▪ Converted into museum for public works and infrastructure</li> </ul>	 <p>Source: Author (19:17, 22<sup>nd</sup> June, 2004)</p>



1981  
**Concert  
Pavilion at  
Pier 6**

- Popular attraction on summer evenings with well known entertainers
- Provides wide range of musical acts
- Good vistas



Source: Author (April, 2002)

**Visitor  
Information  
Centre**

- Open seven days a week to help tourists and local people



Source: Author (09:00, 23 June, 2004)

1985  
**Powerplant**

- Converted old power plant of Baltimore Gas & Electric Co.
- In 1997, developed family entertainment emporium
- Entertainment complex – Hard Rock café, bookshop, Gold's Gym, ESPN zone



Source: Author (10:27, June, 2004)

**American  
Visionary  
Art Museum**

- Dedicated to self-taught, visionary artistry. Venue for receptions, meetings, special events and art exhibitions



Source: Author (April, 2002)

1980  
**Harbourplace**

- Over 160 shops, restaurants and eateries
- Dining, shopping and entertainment
- The world's highest retail operation in sales per square foot



Source: Author (2002)

1976  
**Rash Field**

- Joseph H. Rash Memorial Sports Park open to the public
- The place for citywide public events and athletic contests



Source: Author (April, 2002)

1980  
**Amphitheatre  
between  
Harbour  
Place**

- The Inner Harbour's major event place
- Located at gateway between the downtown and the waterfront

*Note: Some descriptions and pictures in the table adapted from "Baltimore Harbour" (Kahn, 1991), "Baltimore Transition" (Miller, 1998), and web site ([www.baltimorecity.gov/urban3](http://www.baltimorecity.gov/urban3))*

**Scarlett Place**

- Post-modern building for residential use
- Combines existing warehouse with modern building



Source: Author (13:27, 2<sup>nd</sup> July, 2004)

**Columbus Centre**

- Office building and research centre
- Futuristic membrane structure becomes landmark



Source: Author (April, 2002)

**1977 World Trade Centre**

- The headquarters of the Maryland Port Authority, shipping lines and agencies
- Stunning landmark in the inner Harbour
- Providing observation facilities at the top of the building



Source: Author (April, 2002)

**Courtyard Hotel**



Source: Author (15:00, 3<sup>rd</sup> July 2004)

**1989 Harrison's at Pier 5 (Pier 5 Harbour Inn)**

- Inns(76 rooms) and home style restaurant complex
- Replaced the previous parking lots of Pier 5
- Seven Foot Knoll lighthouse located as the vantage point



Source: Author (18:05 4<sup>th</sup> July 2004)

**1982 Rusty Scupper**

- Glass and wood-beam structure
- Served as restaurant and marina (158 boat slips)
- Providing splendid inner harbour views



Source: Author (09:27, 23<sup>rd</sup> June 2004)

**Note:** Some descriptions and pictures in the table adapted from 'Baltimore Harbour'(Keith, 1991), 'Baltimore Transition' (Miller, 1998), and web site ([www.baltimorecity.gov/visitor/](http://www.baltimorecity.gov/visitor/))

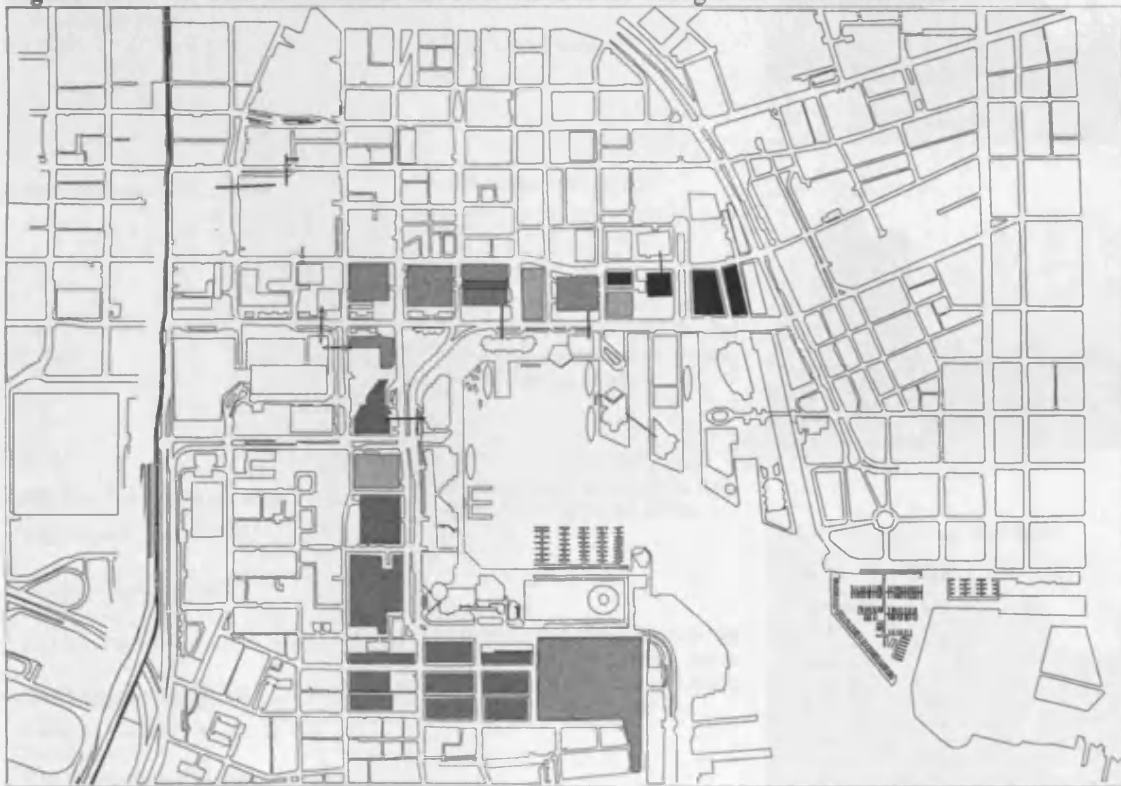
#### 6.2.2.4 The background waterfront realm *Background with a panoramic waterscape.*

The background waterfront realm in the case study area was characterised by its sustaining functions between the foreground waterfront and the inland realm. The sustaining functions resulted from specific building types being located there. The built environment consists of densely packed office buildings, hotels, parks and parking lots (Figure 6.33 and Figure 6.34).

Key elements of this built environment were CG IV and V buildings, which are as follows:

- **CG IV ( Shopping):** the Gallery
- **CG V (Hospitality):** The Renaissance Hotel, the Hyatt Hotel, and the Harbour Court Hotel
- **CG VI (Working):** Legg Meson Tower, USF&G Building, 100 East Pratt Street Building, C&P Telephone Company, and the Community College of Baltimore
- **CG VII (Residential):** Southern waterfront area, the Lutheran Church Complex for The Elderly, and Scarlett Place

**Figure 6.33:** The built environment and its location in the background waterfront realm








In particular, the provision of ample parking spaces in open parking lots and inside buildings such as The Renaissance, The Hyatt and Harbour Court Hotel, was one of the characteristics of the background waterfront realm (Figure 6.48). With road systems accessible to the water, the ample parking spaces played an important role in attracting people to this area and creating an accessible waterfront to both cars and pedestrians. In addition, the conversion of



the historic Federal Hill into a park provided a local playground with a panoramic waterscape. The built environment in the background waterfront realm links the downtown to the foreground waterfront realm as a transition zone in terms of functions and access routes to the water. Apart from the sustaining functions, the grid pattern of the streets in the background waterfront realm creates highly accessible routes and continuity of access to the water, without breaking the interaction between the city and the waterfront.

**Figure 6.34:** The built environment in the background waterfront realm

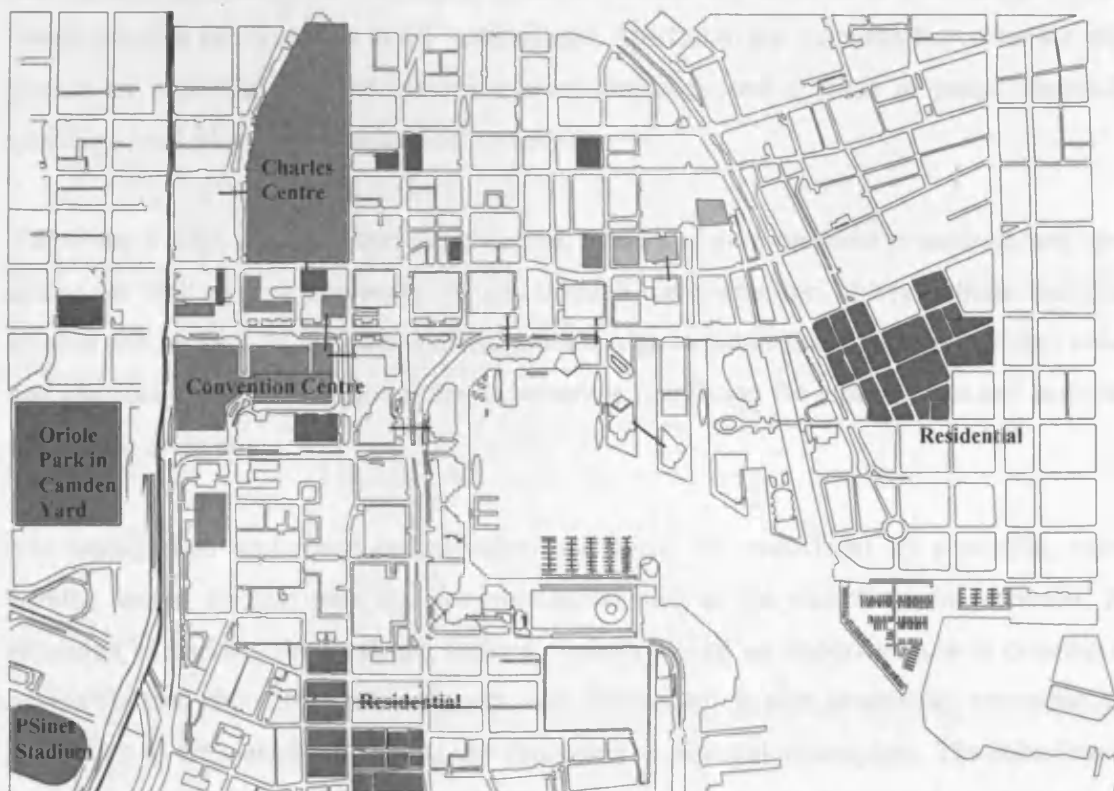
building environment	function	picture	
The Gallery (1987)	<ul style="list-style-type: none"><li>▪ Retail shops, entertainment, eating place</li><li>▪ With 1,150 car garage</li></ul>		
Renaissance Hotel (1988)	<ul style="list-style-type: none"><li>▪ A 622 room hotel</li></ul>		
Hyatt Regency Hotel (1981)	<ul style="list-style-type: none"><li>▪ 500 rooms With garage</li></ul>	See Figure 6.68	
The Harbour Court Hotel (1986)	<ul style="list-style-type: none"><li>▪ Condominium, hotel and office complex: 200 rooms, 165 luxury condominium apartments, shops and 600 garage spaces</li></ul>		
400 East Pratt Building (1981) Legg Mason Tower (1989)	<ul style="list-style-type: none"><li>▪ 11 story building, one of the first office buildings in the 1980s</li></ul>	Office buildings along Pratt Street 	
USF&G Building (1973)	<ul style="list-style-type: none"><li>▪ Located along Pratt Street in the background waterfront realm except for the Lutheran Church Complex for the Elderly</li></ul>		
100 East Pratt Street Office building (1984)			
IBM Office building(1975) Lutheran Church Complex for the Elderly(1972) C & P Telephone Company (1977) A 625 Car Parking Garage(1975)			
Federal Hill	<ul style="list-style-type: none"><li>▪ Historical place converted into park</li></ul>		

### 6.2.2.5 The inland realm

The inland realm is geographically and visually disconnected from the water but it has an indirect impact on the waterfront because of the existence of the Central Business District (CBD) and the downtown area. In addition, large-scale sports facilities, such as Oriole Park and the PSInet Stadium, and the international convention centre have influenced the activities of the users of the waterfront. In particular, due to the geographical location of the downtown area adjacent to the waterfront, there is no doubt that the functions of the waterfront have become inseparably linked to the functions of the downtown area.

The case study area is surrounded by four different aspects of the inland realm, with a built environment consisting of various building types from CG I to VII (Figure 6.35). In general, residential buildings and parks are located on the Key Highway waterfront side; retail and residential uses are located along President Street; and dense CBD buildings and sports facilities are situated along Pratt and Light Streets. As a result, the waterfront of the case study area can be considered part of downtown, making it a unique CBD with a natural environment in the form of the waterfront.

**Figure 6.35:** The built environment and its location in the inland realm



### **6.2.3 Key findings and conclusions**

Findings from mapping the current built environment in the case study area demonstrate the existence of the distinctive five realms of the waterfront, which have strong spatio-functional and interdependent relationships with each other. In addition, there are 7 building types from the water surface realm, to the background waterfront realm providing functional diversity and robustness, and playing an important role in creating cultural ambience. Furthermore, the overall layout of the built environment of the waterfront was people-oriented for public uses, providing wide pedestrian waterfront promenades, parks, open spaces and an amphitheatre. Above all, the functional integration between the seven building types, especially CG I buildings and the pedestrian-only waterfront promenade, was a critical spatial structure for creating the cultural waterfront.

The location of Cultural Grade I (CG I) buildings near to the water's edge with its panoramic waterscape and the high quality of architectural design played an important role in drawing local people, tourists and downtown workers. The location of leisure, entertainment and shopping related buildings in the background waterfront realm are well balanced with open space and parks. As a result, the foreground waterfront realm truly becomes a place for people and cultural activities. The important findings include the abundance of floating objects, which function like buildings in the 'waterscape'. Apart from the functions they cater for, they played an important role in creating cultural ambience and a sense of place, especially creating visual identity for the cultural waterfront.

The Water's edge was dedicated to public use, by way of the waterfront promenade and open spaces, as well as to a continuity of uses through the connection of key cultural facilities, squares and parks. The dedication of the water's edge to public uses maintained direct visual and physical openness with the water. It became a foundation for cultural uses and activities in the case study area.

The Background waterfront realm mainly supported the waterfront by providing ample parking spaces for the users and accommodation near to the waterfront. In particular, the provision of parking for local and national visitors played an important role in creating an accessible waterfront for both car users and pedestrians. It also seamlessly connected the downtown to the waterfront without any functional or physical interruption. The inland realm was visually disconnected from the waterfront but it had a strong functional integration with streets accessible to the water.

## **6.3 A morphological analysis: analysis of the current built environment of the waterfront**

In this section, a morphological analysis examines the interrelationship of the waterfront components in the context of the overall waterfront. Examining how the independent elements of the built environment were integrated with each other to support cultural uses is an important process in the collection of baseline data prior to conducting the survey analysis reported in section 6.4. The morphological analysis looks at three key elements of the built environment (Figure 5.10) and their relationship.

### **6.3.1 Analysis of urban waterfront form**

The urban form of the waterfront is characterised by five distinctive aspects:

1. the grid pattern of the urban waterfront environment.
2. an engineered irregular water's edge, which protrudes boldly into the water.
3. an enclosed four-side water's edge which provides many access points.
4. a low density, large open space compared to the downtown areas.
5. a clear division of the 'five realms of the waterfront space' in the grid patterns.

Unlike Europe's historic and irregular urban waterfront form, the grid patterns for vehicular and pedestrian routes enable users to gain easy and direct physical and visual access to the waterfront. Joining the grid patterns of the downtown built environment to the engineered irregular water's edge forms a unique urban waterfront setting (Figure 6.36).

In addition, the six engineered piers on the north side of the water's edge, which were created after the great fire in 1904, increase the overall length of the water's edge. Deeply projecting piers to the south produce a narrow canal-like shape to the waterfront between the piers. As a result, the elongated water's edge creates a longer water frontage than if it was linear. Furthermore, unlike the organic growth of the European urban fabric, the grid pattern of the urban form, meeting the water's edge at right angles, results in clear physical and visual accessibility to the water. This physically and visually accessible urban form provides a significant foundation for the main routes leading to the water.

Furthermore, the enclosed, four-sided waterfront provides many physical and visual contact points not only from downtown to the waterfront but also from the world of the water to downtown, providing a panoramic waterscape. The enclosed waterfront spaces provide the benefit of 'water surface' 'water's edge', 'foreground waterfront' and 'background waterfront' realms with similar quality to the waterfront.

The low density and the predominance of open space on the waterfront, especially along the water's edge, consequently gives a great sense of openness and reduces the visual barriers between the dense, high-rise downtown, and the low-rise and open waterfront. Finally, the grid pattern of the urban waterfront becomes a foundation for the clear functional and physical division of the 'five realms of the waterfront'. It would be difficult to achieve such clarity with an irregular urban grain.

**Figure 6.36:** The urban waterfront form of the case study area



**Source:** Author created this figure and ground map based on the map provided by Baltimore City Planning Department before the construction of the Visitor's Information Centre (opened 2004) and Extension of the Aquarium (opened in 2004).

### **6.3.2 The analysis of the built environment of the waterfront**

As analysis of the worldwide waterfront redevelopments in chapter 4 showed, five key components – urban waterfront form, built environment, users, water and event (programmes) – were found as basic components in various waterfront spaces (Figure 4.76). Amongst them, the built environment played a critical role in shaping the morphology of the waterfront. In particular, the morphology of waterfront space, created by the three components of the built environment – buildings, open spaces and historical artefacts - becomes an important foundation to accommodate cultural uses and activities. Each component provides a different

function in creating a cultural waterfront. Cultural waterfronts are created not by a building but by a combination of components of the built environment.

The composition of these components actually creates the physical outline of the built environment in the case study area. The spatial relationship between ‘buildings’, ‘open spaces’ and ‘historical artefacts’ and ‘the water’ is crucial to an investigation of the characteristics of the built environment on the cultural waterfront. In addition, designing the cultural waterfront requires an empirical understanding of the spatial structure and interrelationship of these key components. Hence, it is necessary to look at how building types, open spaces and historic artefacts interact with each other to accommodate cultural uses and activities. Also, it is important to see how the interrelationship of these components is embedded with the water to find spatio-functional interfaces between the built environment and the water (or between waterscape and townscape environment) in the case study area (Figure 6.37).

**Figure 6.37:** The three components of the built environment and two types of environment

<b>Key components</b>	<b>‘Townscape’ environment</b>	<b>‘Waterscape’ environment</b>
<b>1. buildings</b>	-cultural grade I to VII buildings	-floating and anchored objects
<b>2. open spaces</b>	-Street (pedestrian and vehicle) -square -park -parking spaces	-water surface -waterways
<b>3. historic artefacts</b>	-buildings -objects -places	-floating and anchored objects

### 6.3.2.1 Analysis of ‘open space’ on the waterfront

To begin with, the relationship between ‘open space’ and the ‘cultural waterfront’ is examined using an analysis of three types of space:

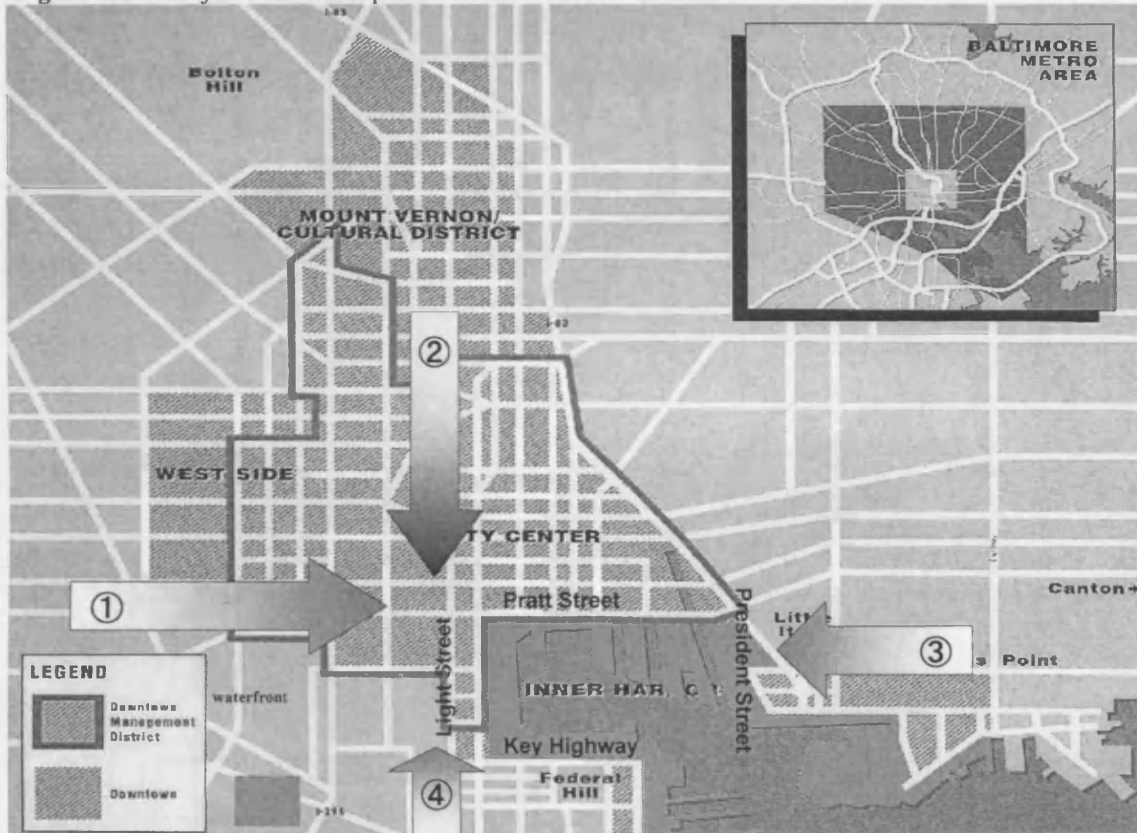
1. the streets and the waterfront
2. squares and parks and the waterfront
3. parking spaces and the waterfront

#### 1) Streets and the cultural waterfront

In terms of macro-level street structures on the waterfront, Figure 6.38 shows the major access route for vehicles and pedestrians to the waterfront – Pratt Street, Light Street, Key Highway

Road and President Road. It also illustrates the geographical relationship between Baltimore's downtown area and the waterfront. The most important streets are Pratt Street (arrows ① and ③) and Light Street (arrows ② and ④), which straddle the downtown and waterfront because most of the access flow to the waterfront uses both streets rather than the Key Highway Road to the south or President Road to the East.

**Figure 6.38:** Major vehicle and pedestrian movement directions



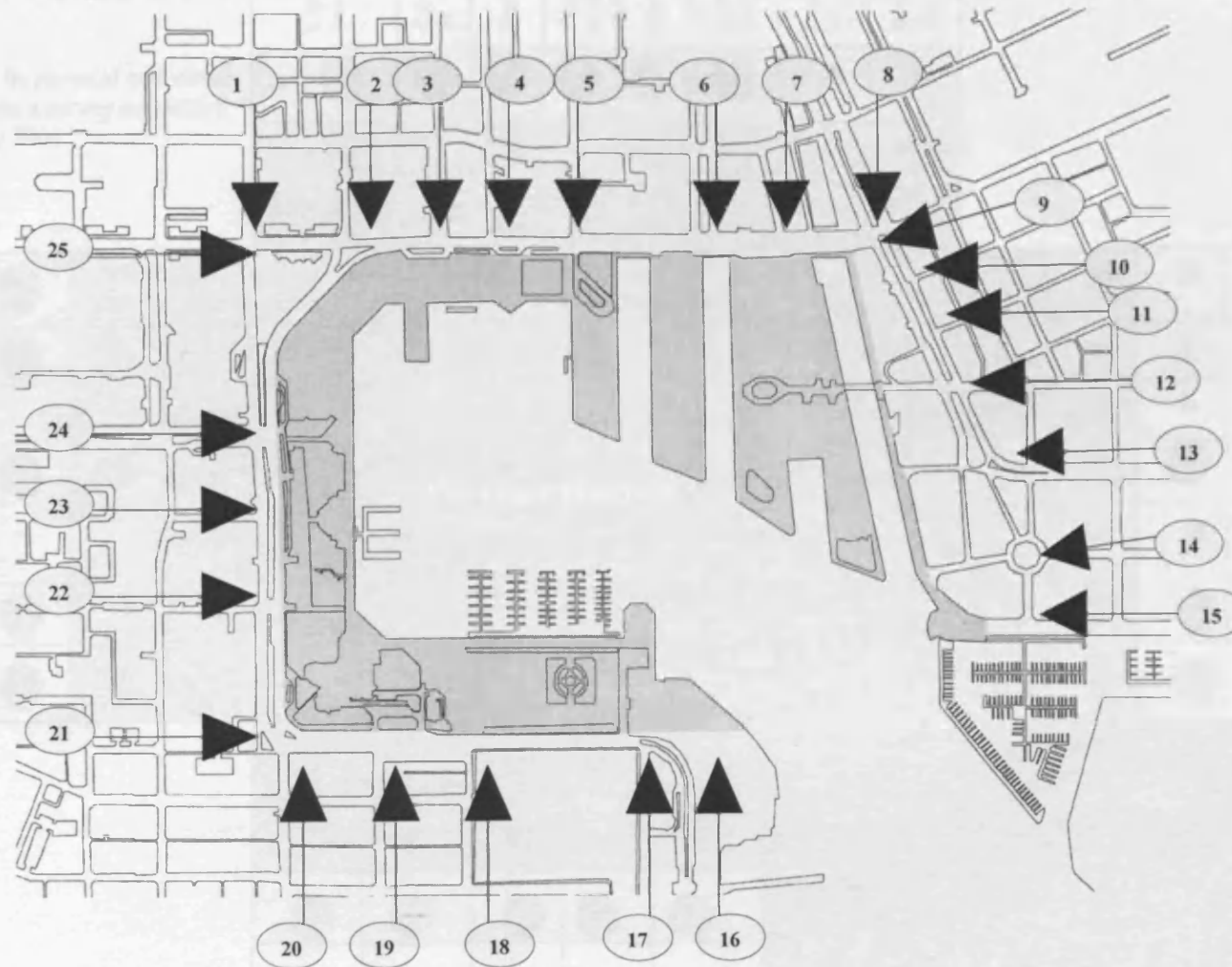
Source: [www.godowntownbaltimore.com/About\\_us\\_DMA\\_Map.htm](http://www.godowntownbaltimore.com/About_us_DMA_Map.htm), (06/09/2002)

Note: The arrows in the picture were created by the author. The size of the arrow represents the amount of flow of vehicles and pedestrians

In terms of the micro-level street structure, the following morphological characteristics are identified (Figure 6.39). 25 vertical contact points for pedestrians and vehicles to the waterfront are identified between inland downtown and the waterfront, enabling highly accessible routes for pedestrians and vehicles. These vertical contact points generate physical, visual and symbolic accessibility. Most of the 25 identified access routes preserve these three aspects of accessibility, except Concord Street and Barre Street (⑦ and ⑬ in Figure 6.39 and Figure 6.40).

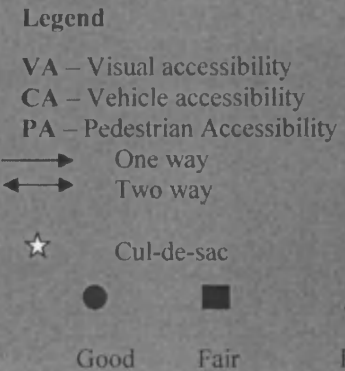


**Figure 6.39:** The number of vertical contact points between the streets and the waterfront



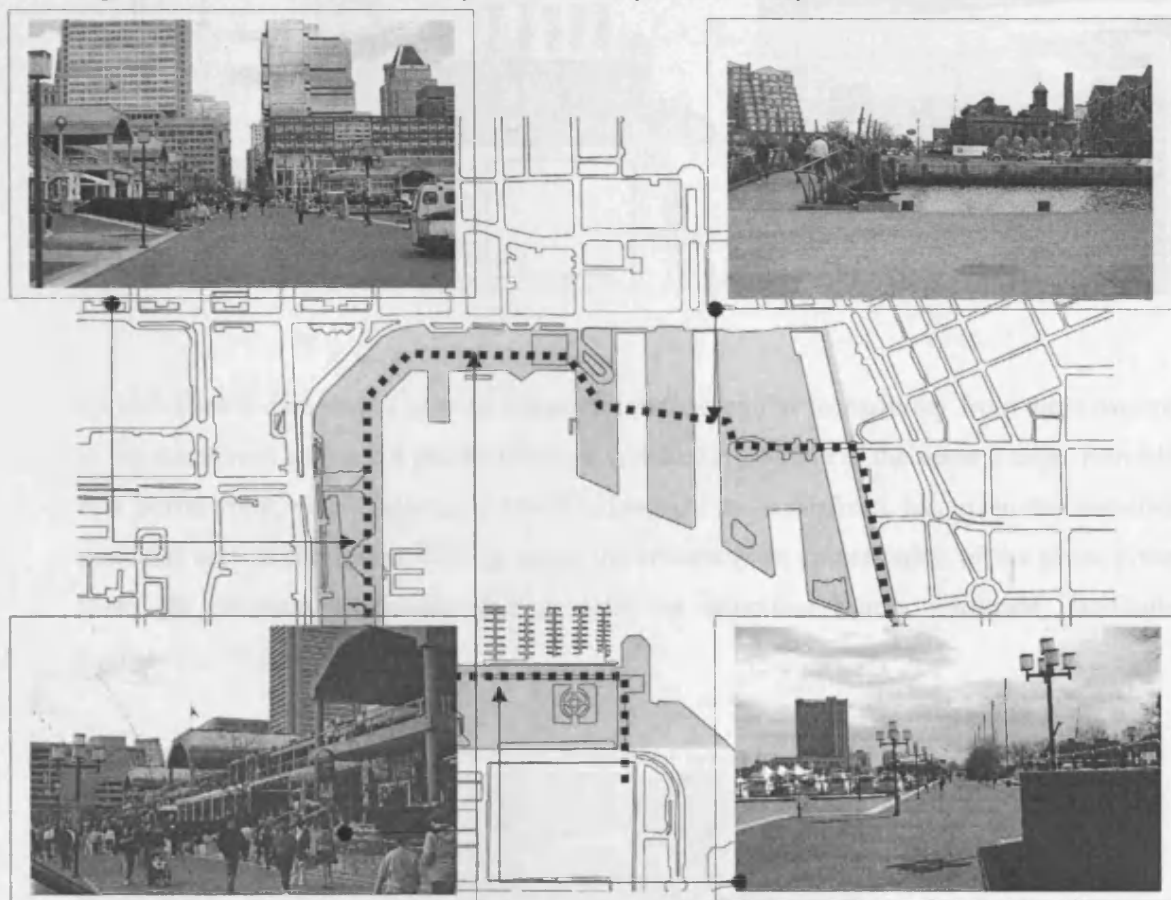


**Note:**  
The street system and its physical and visual accessibility is based on a survey conducted in April 2002 and July 2004.



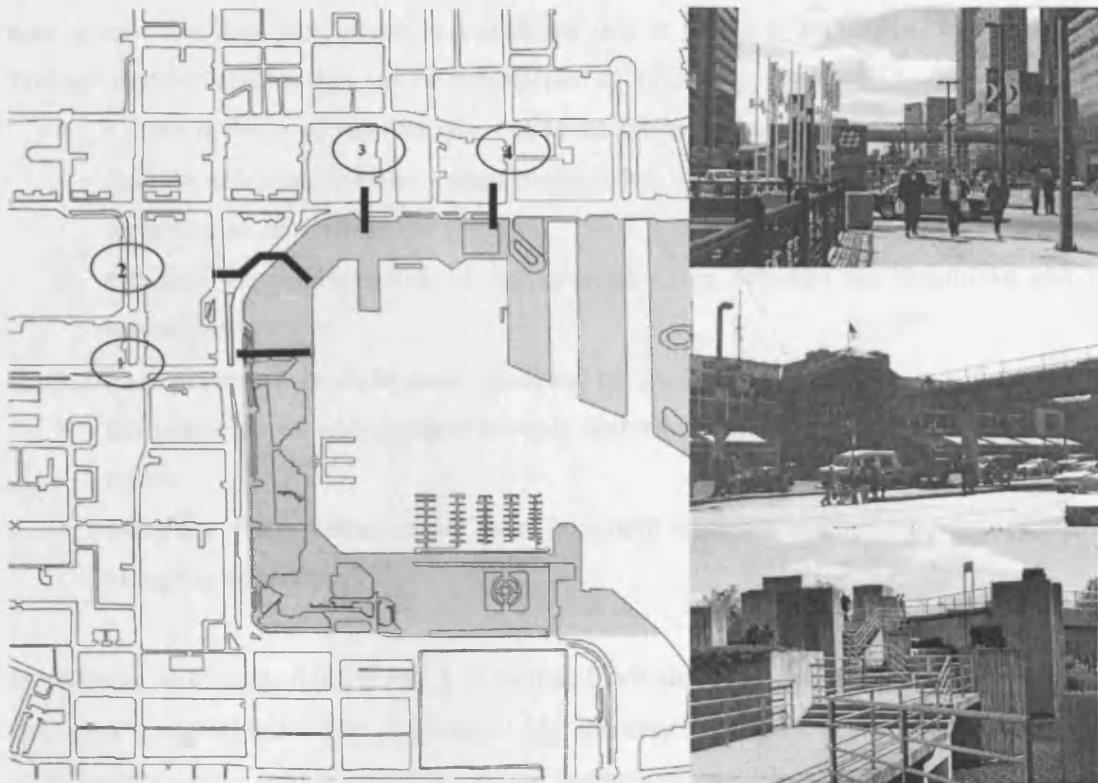
The continuous horizontal contact point between the street and the waterfront gives full visual access to the waterscape from four major streets – Light Street, Pratt Street, Key Highway and President Street (Figure 6.40). Because of the visual contact with the water, this provides pedestrians and drivers with a definite sense of the waterfront, with the psychological proximity to the water overcoming physical distance. The continuous pedestrian-only waterfront promenades alongside the water's edge realm connects the whole waterfront. As a result, the 'water's edge' and 'foreground waterfront' realm provides pedestrians with full visual and physical access to the four sides of the water's edge (Figure 6.41).

**Figure 6.41** Continuous waterfront promenades for pedestrians only



The construction of the skywalks overcome the barrier created by heavy traffic movement along Pratt and Light Streets at the waterfront gateway. As a result, the junction of Pratt and Light Streets becomes an important node (Figure 6.42).

**Figure 6.42: Skywalk connection to the waterfront**



25 identified access routes provide visual and psychological accessibility from the downtown to the waterfront which is a great advantage in attracting people to the water's edge. Provision of a buffer zone, where streets are created alongside the waterfront, has given the waterfront potential uses in the future. Finally, using the waterway as an extension of the street system gives the ultimate experience and provides an important tourist attraction, facilitating sightseeing (Figure 6.43).

**Figure 6.43: The waterway as an extension of the street system**



In short, the analysis of the macro and micro levels of the street structure in the case study area reveals that they have played a significant role in giving a foundation to cultural uses. The successful characteristics can be summarised as follows:

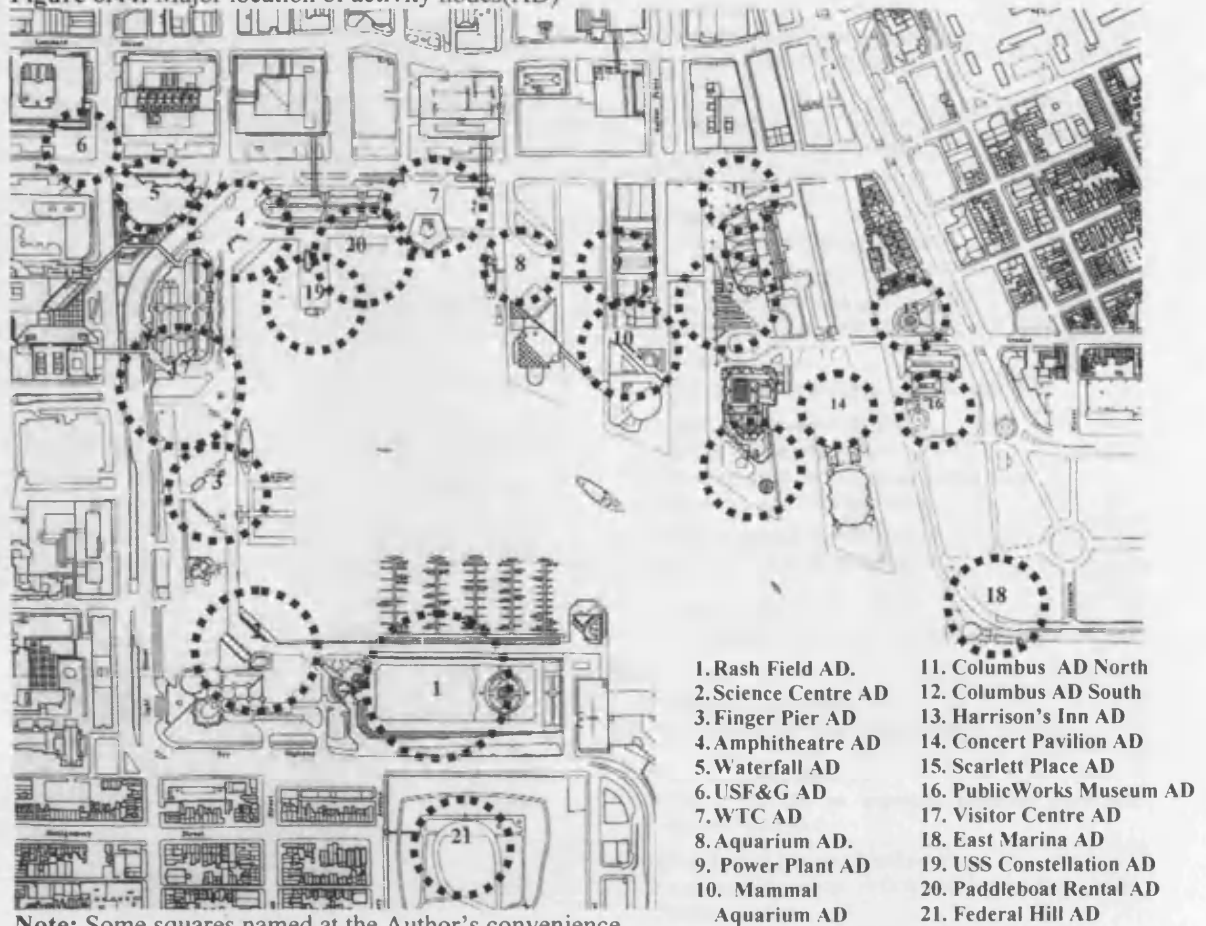
- a clear division of the five types of accessibility route – 1) street for pedestrians, 2) road for vehicles, 3) water's edge promenades, 4) skywalk to overcome traffic and 5) waterway as an extension of the street.
- effective geographical link of the street structure between the downtown and the waterfront
- good preservation of physical, visual and psychological access
- the provision of wide, pedestrian-only waterfront promenades in the water's edge realm
- using the 'water surface realm' as an important waterway connecting points of interest along the waterfront

In addition, as discussed in chapter 3, in terms of two and three dimensional characteristics of the water's edge (Figure 3.26, 3.27 and 3.33), the case study area has a 'concave' and 'four sided' water's edge which generates strong interactions and visual communication between users and the water. In addition, the combination of 'stepped' and 'jutting over water' (e.g. piers and marina) sections of the water's edge, especially the six elongated piers and large-scale marina, enhance the physical, visual and psychological accessibility to the water.

## **2) Squares and parks and the cultural waterfront**

One of the most significant characteristics of the waterfront lies in a series of activity nodes along the waterfront promenade, harnessing points of attraction from the 'water's edge' and 'foreground waterfront' to the 'inland' realm. The Inner Harbour waterfront is characterised by 21 distinctive activity nodes between the water surface realm and the foreground waterfront realm (Figure 6.44). These activity nodes are created by squares, parks, building-related and water-related facilities. They are connected by waterfront promenades and exposed to both the water's edge and the outer access road – Pratt Street, Light Street and Key Highway. As a result, the flow of people and activities flourishes at activity nodes. Each provides a high quality sense of place. In addition, they are distributed in a balanced manner throughout the whole case study area. The existence of activity nodes generally takes place in front of buildings. Their vitality is strongly related to the functions of the buildings on the waterfront. Depending on the functions of the buildings, the vitality and levels of usage of the activity nodes are variable (Figure 6.45).

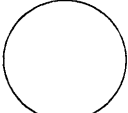
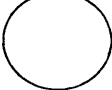









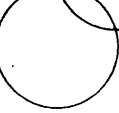

**Figure 6.44: Major location of activity nodes(AD)**



**Note:** Some squares named at the Author's convenience

**Figure 6.45: The characteristics of the 21 activity nodes**

Square Name	Gathering Size	Intensity of use	Spatial function
1. Rash Field		inconsistent	<ul style="list-style-type: none"> <li>• Sports and Events</li> <li>• Public gathering and sitting place</li> </ul>
2. Science Centre		always and very consistent	<ul style="list-style-type: none"> <li>• Gathering for entering</li> <li>• Pass-by zone</li> <li>• Junction of the waterfront promenades</li> <li>• Part of the promenades</li> <li>• Part of natural park</li> <li>• Gathering &amp; Pass-by zone</li> </ul>
3. Finger Pier		consistent	<ul style="list-style-type: none"> <li>• Gateway to the waterfront</li> <li>• Street performance area</li> <li>• Main junction of the waterfront promenades</li> <li>• Sitting place for observing the waterfront</li> </ul>
4. Amphitheatre		always consistent	<ul style="list-style-type: none"> <li>• Buffer zone between the downtown and the gateway</li> <li>• Pass-by zone to the waterfront</li> <li>• Gathering</li> <li>• Pass-by zone</li> </ul>
5. Waterfall		consistent	<ul style="list-style-type: none"> <li>• Huge gathering place from north waterfront</li> <li>• Part of the waterfront promenades</li> <li>• Buffer zone between the waterfront and Pratt St.</li> </ul>
6. USF&G		inconsistent	<ul style="list-style-type: none"> <li>• Gathering place for tourists and local people</li> <li>• Entrance to the aquarium</li> <li>• Part of the waterfront promenades</li> <li>• Major activity nodes and junction</li> <li>• Performance area</li> </ul>
7. WTC		consistent	
8. Aquarium		very and always consistent	

9. Power Plant		very and always Consistent	<ul style="list-style-type: none"> <li>▪ Gathering</li> <li>▪ Part of the waterfront promenades</li> <li>▪ Entrance to the Power Plant</li> </ul>
10. Mammal Aquarium		consistent	<ul style="list-style-type: none"> <li>▪ Gathering</li> <li>▪ Part of the waterfront promenades</li> <li>▪ Pass-by zone</li> </ul>
11. Columbus Centre North		inconsistent	<ul style="list-style-type: none"> <li>▪ Pass-by zone</li> <li>▪ Entrance to the Columbus Centre</li> </ul>
12. Columbus Centre South		inconsistent	<ul style="list-style-type: none"> <li>▪ Pass-by zone</li> <li>▪ Part of the waterfront promenades</li> <li>▪ Entrance to Coast Guard ship</li> </ul>
13. Harrison's		consistent	<ul style="list-style-type: none"> <li>▪ Gathering place</li> <li>▪ Sitting place for meditation on the waterfront</li> </ul>
14. Concert Pavilion		inconsistent	<ul style="list-style-type: none"> <li>▪ Gathering place for entering</li> <li>▪ Part of the waterfront promenades</li> </ul>
15. Scarlet Place		inconsistent	<ul style="list-style-type: none"> <li>▪ Entering place for mixed use Scarlet place</li> <li>▪ East entrance of the waterfront</li> </ul>
16. Public Work Museum		consistent	<ul style="list-style-type: none"> <li>▪ Gathering place for entering</li> <li>▪ Part of the waterfront promenades</li> </ul>
17. Visitor Centre		very Consistent	<ul style="list-style-type: none"> <li>▪ Open in 2004</li> <li>▪ Becomes an important stop-over for tourists</li> </ul>
18. East Marina		very Consistent	<ul style="list-style-type: none"> <li>▪ Luxurious restaurants</li> <li>▪ Private marina slip attracts people for walking</li> </ul>
19. USS Constellation		very Consistent	<ul style="list-style-type: none"> <li>▪ Key landmark attraction</li> <li>▪ Pier 1 provides an important gathering place and optional activities</li> </ul>
20. Paddleboat Rental		very Consistent	<ul style="list-style-type: none"> <li>▪ Popular children and families' place</li> <li>▪ Animates the water surface realm providing vitality along the edge</li> </ul>
21. Federal Hill		consistent	<ul style="list-style-type: none"> <li>▪ Local community park</li> <li>▪ playground for children</li> </ul>

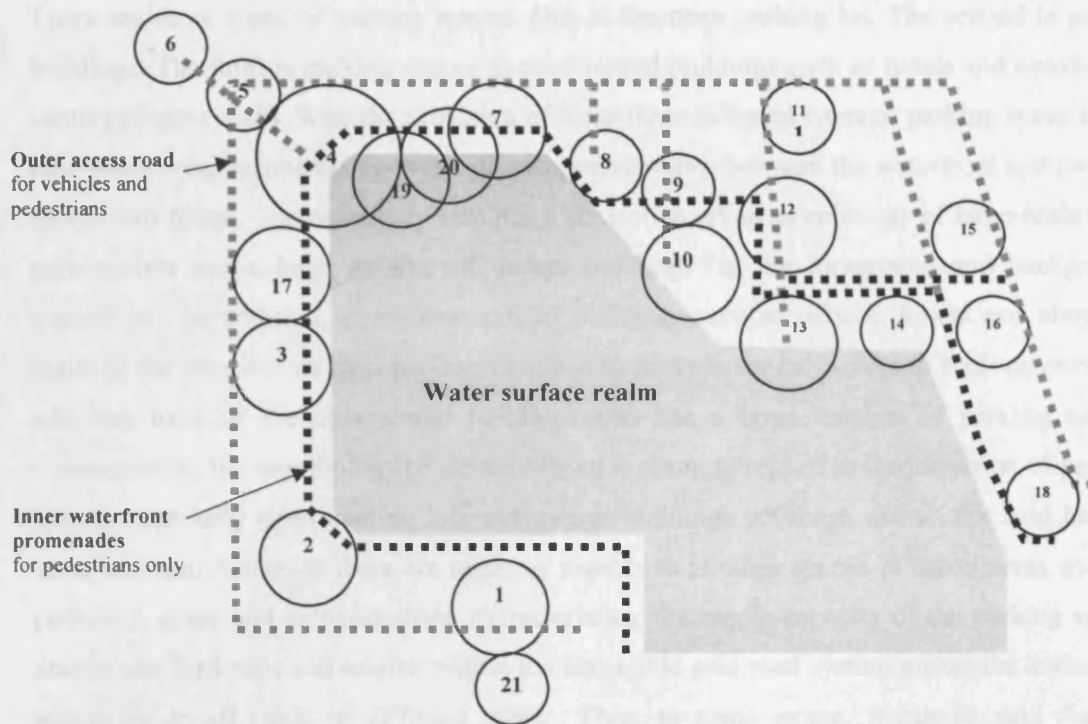
**Note:** The various sizes reflect the level of intensity of use. The dotted circle represents inconsistent use.

The morphological characteristics of activity nodes can be summarised as follows. Firstly, all activity nodes are connected by pedestrian-only waterfront promenades. As a result, each activity node plays a significant role in creating a major congregation place and junction of uses (Figure 6.45). Secondly, the nodes are also connected by four major outer access roads – Pratt, Light, Key Highway and President. As a result, each activity node provides natural accessibility from the downtown area to the waterfront (Figure 6.46).

Thirdly, the broad openness at each node between the waterfront promenades and the outer access roads not only enables people to have direct visual contact with the waterfront from the background waterfront realm but also gives a great sense of freedom, and vantage points to view the scenic waterscape. Fourthly, the waterfront gateway acts as both a main access corridor and the most robust activity node. After the success of the Harbourplace, the junction of Pratt and Light streets has become an urban waterfront gateway, which connects the downtown with the water (Figure 6.47).



**Figure 6.46:** Squares connected by the waterfront promenades and outer access roads



Due to the geographic link with the downtown, there is high accessibility by the skywalk (Figure 6.42). With closeness to the water from downtown and a high quality approach route, the Amphitheatre located between two Harbourplace pavilions becomes an important focal point as a gateway (Figure 6.47). Pedestrian patterns of movement and behaviour have made this place an important activity node. In addition, the combination of an aesthetically animated buffer zone, the Amphitheatre, the visual openness and the historic landmark (USS constellation) have given it a distinctive role as a gateway compared to other access routes to the waterfront

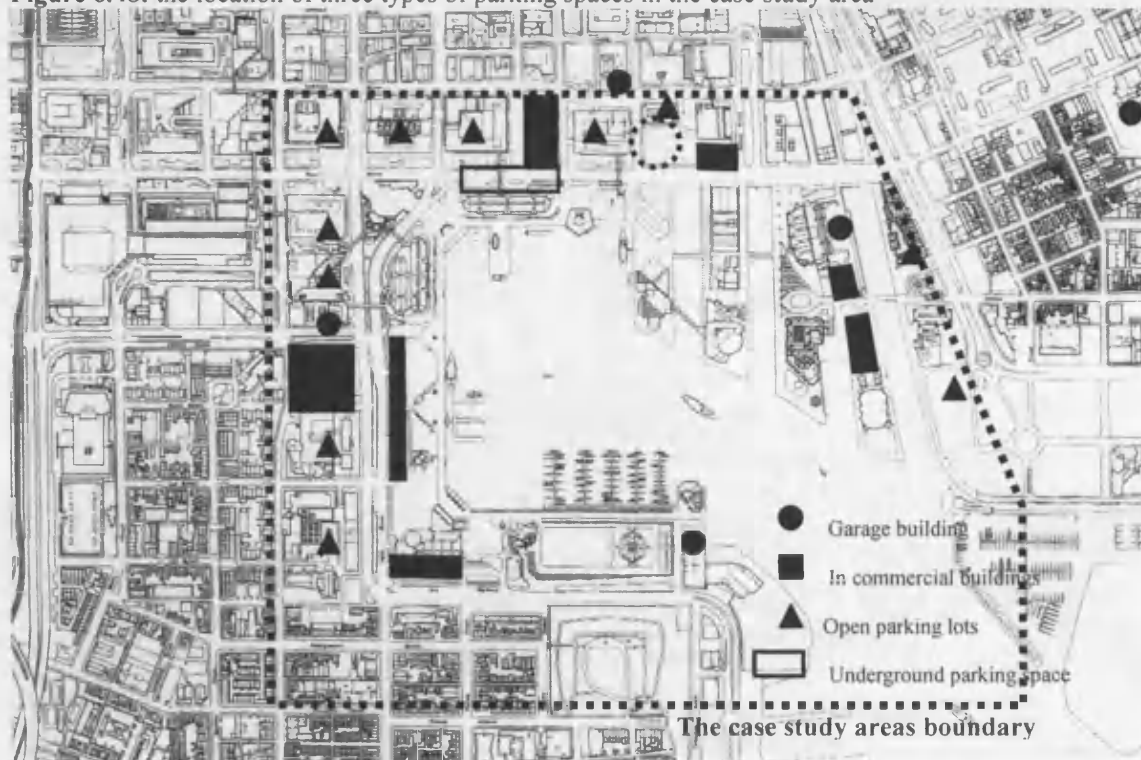
**Figure 6.47:** Overall view of the waterfront gateway



### 3) Parking spaces and the cultural waterfront

There are three types of parking spaces. One is the open parking lot. The second is garage buildings. The third is parking spaces in commercial buildings such as hotels and convention centres (Figure 6.48). With the provision of these three different types of parking space in the case study area, an interesting morphological relationship between the waterfront and parking spaces was found. The case study area has a distinctive urban morphology of large-scale open parking lots and a large number of garage buildings 'in the foreground and background waterfront'. In addition, every commercial building, such as offices, hotels and shopping malls in the area has its own parking facilities to provide for car access to their property. In addition, each of the commercial buildings also has a large number of parking spaces. Consequently, the morphology of the waterfront is strongly related to the provision of parking spaces, especially open parking lots and garage buildings, although not all the land has yet been built on. Although there are negative aspects to parking spaces in urban areas such as pollution, noise and anti-pedestrian characteristics, the ample capacity of the parking spaces and its use for locals and tourists within the accessible grid road system makes the waterfront accessible to all kinds of different users. Thus, to some extent, it can be said that the sustainability of the waterfront relies on its accessibility, with ample parking spaces in a highly visual, and physically accessible waterfront morphology.

**Figure 6.48:** the location of three types of parking spaces in the case study area



**Note:** In the course of this research, a transformation took place in the case study area. New office buildings are under construction at the former open parking lots. The dotted circled area is the site for a new office construction in 2004, but this was formerly a parking lot.



### 6.3.2.2 Analysis of building types on the waterfront

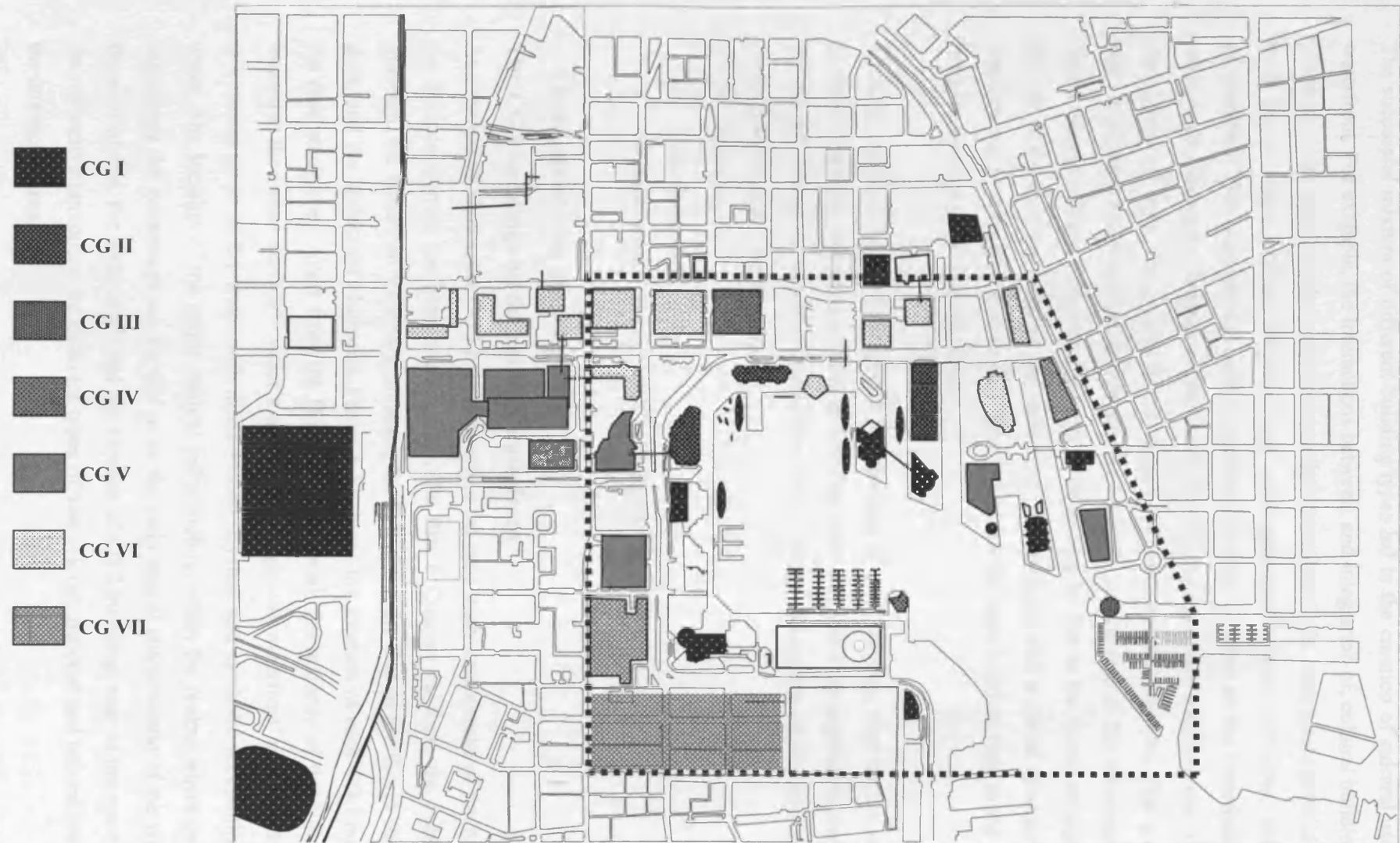
In the previous section 6.2, mapping the current waterfront's built environment demonstrated the overall situation of the current built environment in each of the five realms of the case study area. Seven building types from CG I to VII are listed in Figure 6.49 and are shown in each of the five realms of the case study area in Figure 6.50.

**Figure 6.49:** Building types in the case study area between 'water surface' and 'background waterfront' realms

Buildings types	Function	building
<b>Cultural Grade I</b> (CG I)	<b>Major cultural infrastructure</b> (museum, gallery, theatre, concert hall, art centre, maritime museum)	<ul style="list-style-type: none"> <li>▪ The National Aquarium and Marine Mammal Museum</li> <li>▪ Maryland Science Centre</li> <li>▪ Pier 6 Concert Pavilion</li> <li>▪ Maritime museum (USS constellation, Submarine Toask, Chesapeake lightship, Coast Guard Taney, Seven Foot Knoll Lighthouse)</li> <li>▪ American visionary museum</li> <li>▪ The Public Works museum</li> <li>▪ Top of the World Observation Centre in the World Trade Centre</li> <li>▪ Pride of Baltimore - tall ship</li> <li>▪ City Clipper</li> <li>▪ Tall ships during 4<sup>th</sup> July Sailbration[Sic] (Cisne Branco, Mircea, Sagres, Cuouhtemoc)</li> <li>▪ Holocaust Memorial</li> <li>▪ ESPN zone</li> <li>▪ Power Plant</li> <li>▪ Hourbourplace</li> </ul>
<b>Cultural Grade II</b> (CG II)	<b>Leisure &amp; Entertainment</b> (casino, convention centre, paddling boats)	<ul style="list-style-type: none"> <li>▪ Living Classrooms Foundation – Sigbee Mildred Belle and Lady Maryland ships</li> <li>▪ Marina – East Marina, Key Highway Marina</li> <li>▪ Paddling boats, electric boat rental</li> <li>▪ Water taxi, Seaport taxi, Mini V</li> <li>▪ Cruise service - Lady Baltimore, Bay Lady, Prince Charming, Duchess of Pintail Cruise</li> <li>▪ Living Classrooms Foundation</li> <li>▪ Pier V building</li> </ul>
<b>Cultural Grade III</b> (CG III)	<b>Eating</b> (restaurant, café, pub, bar...)	<ul style="list-style-type: none"> <li>▪ Harbourplace</li> <li>▪ Rusty Scrapper</li> <li>▪ Harrison's at Pier 5</li> </ul>
<b>Cultural Grade IV</b> (CG IV)	<b>Shopping</b> (record, cloth, book, accessory, gift, food.)	<ul style="list-style-type: none"> <li>▪ The Gallery</li> <li>▪ Harbourplace</li> </ul>
<b>Cultural Grade V</b> (CG V)	<b>Hospitality</b> (hotel, motel, inn ..)	<ul style="list-style-type: none"> <li>▪ Harrison's Inn</li> <li>▪ Hyatt Hotel</li> <li>▪ Inner Harbour Court Hotel</li> <li>▪ Renaissance Hotel</li> <li>▪ Mariott Hotel</li> <li>▪ Convention Centre</li> </ul>
<b>Cultural Grade VI</b> (CG VI)	<b>Working</b> (office, public building...)	<ul style="list-style-type: none"> <li>▪ World Trade Centre</li> <li>▪ Columbus Centre</li> <li>▪ Visitor Information Centre</li> <li>▪ Dockmaster</li> <li>▪ Ticket office</li> <li>▪ Legg Mason Tower</li> <li>▪ USF&amp;G building</li> <li>▪ 100 East Pratt Street</li> <li>▪ C/P Telephone company</li> <li>▪ Community College of Baltimore</li> <li>▪ IBM office building</li> </ul>
<b>Cultural Grade VII</b> (CG VII)	<b>Residence</b> (Housing, condominium..)	<ul style="list-style-type: none"> <li>▪ Scarlett Place</li> <li>▪ Lutheran Church Complex for Elderly</li> <li>▪ Federal Hill Residential areas</li> </ul>

Source: Author (2004)

**Figure 6.50:** The overall distribution of 7 building types in the case study area



**Source:** Author (2004). **Note:** CG II, CG III, and CGIV functions coexist in CG II buildings in the case study area. Multi-functional characteristics are often found in CG II, III, and IV buildings

The successful mixture of different building types led to the creation of cultural uses on the waterfront. For example, the interactions between, and integration of, cultural buildings in the physical environment, such as museums, galleries, concert halls, entertainment buildings, has built up a 'major cultural infrastructure' that generates cultural activities, events and programmes. This integration creates a significant synergy between all the waterfront uses. In other words, successful functions within each building type generate sustained use. The larger the number of uses, the greater the economic and socio-cultural benefits. The greater the success of each building type, the greater its influence on the rest of the buildings, the so-called synergy effects. However, the synergy effect may be due to the spatial arrangement of the rest of the building types on the waterfront. A waterfront with a spatial arrangement that connects the five realms of waterfront and links each different building type to the others is likely to encourage the synergy effect.

Thus, to examine the interrelationship of functions of each building type on the waterfront provides empirical data on how different building types and spatial arrangements contribute to the overall success of the cultural waterfront. To do this, three aspects of interrelationship are investigated for each building type:

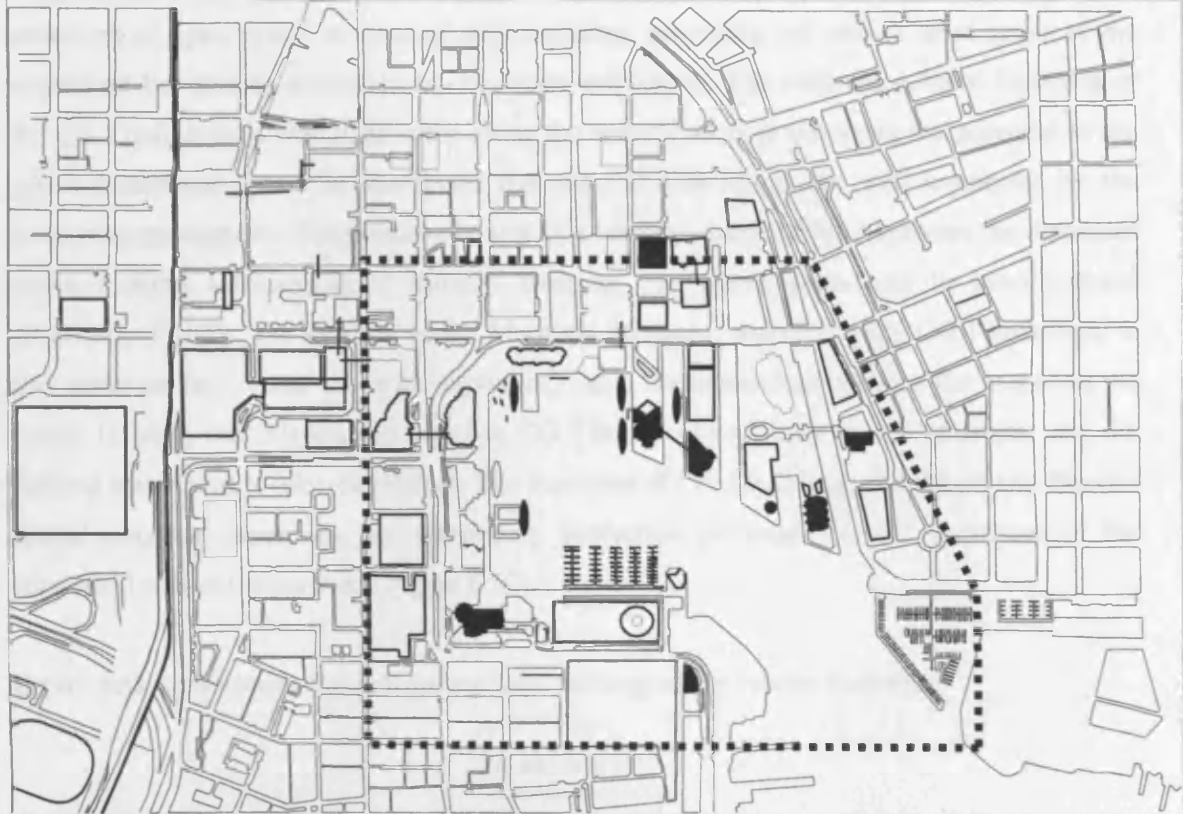
1. functions
2. interrelationship
3. interrelationship between each building type and the water

### **1) Functions of each building type**

#### **The CG I buildings on the cultural waterfront**

As Figure 6.49 shows, the CG I buildings within the case study area consist of the Aquarium, the Science Centre, the Maritime Museum, the Pier 6 Concert Pavilion, the Public Work Museum, the American Visionary Museum, the Tall ships, the Top of the World observation deck, and the Holocaust Memorial. Figure 6.51 shows the location of each CG I building in the case study area. Apart from the Holocaust Memorial, the majority of the buildings are located at the 'water surface', 'water's edge' and 'foreground waterfront' realms, where there is a strong sense of the water with direct visual, physical and symbolic accessibility to the water. The location of the major cultural infrastructure within the realms where people can experience the waterscape can be said to be the main spatial characteristic of the waterfront. Because of this, the water itself and the location of CG I buildings near to the water become the distinctive attractions for different types of user – local, national and international - from the downtown area.

**Figure 6.51:** The location of CG I buildings in the case study area



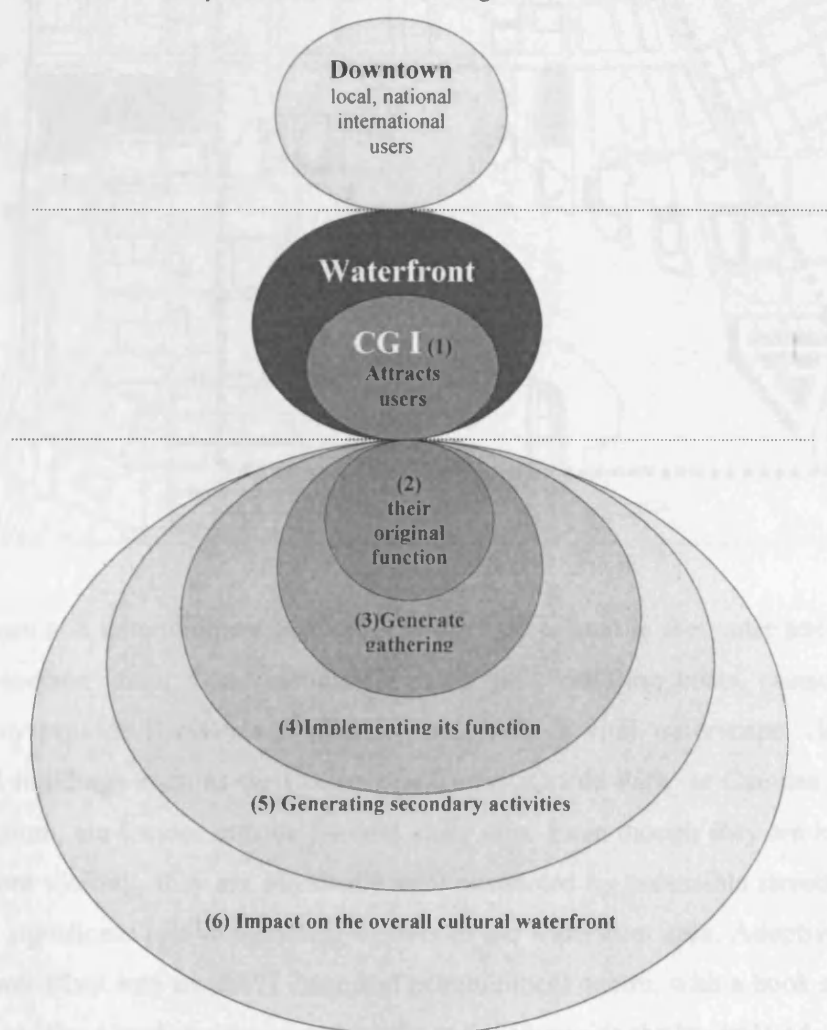
**Note:** The dotted area represents the boundary of the case study area

With their advantageous location near to the water, the successful cultural functions of the CGI buildings draw millions of visitors to indoor programmes and events. For example, “the Aquarium’s average annual attendance is 1.7 million visitors since its opening in August 1981. In its 19 years operation, it has attracted 30 million visitors and three million students and teachers from around the country. The Aquarium’s economic impact annually generates nearly 220 million in revenues, 2,000 jobs, and 6.8 million dollar in state and local taxes” (General Press Kit of the National Aquarium, 2002), because of the exemplary model of managing exhibitions, leisure, entertainment, education and conservation programmes. The Maryland Science Centre<sup>15</sup> opened in 1976 and the Imax theatre in 1987, attracting more than 600,000 visitors annually; their educational and outreach programmes annually attract 250,000 children and teachers (Director of Media Relations, Baltimore, Email interview, 2002). The Maritime Museum in the ‘water surface’ realm attracts hundreds of thousands of students and tourists per year. The Public Works Museum also has a number of visitors from local schools and tourists from around the world. Interestingly, most of the CG I buildings are strongly related to educational functions. As a result, it was found that a large percentage of

<sup>15</sup> There was a change of use of the Imax section of the Science Centre when I conducted a survey during the summer time in 2004. The number of visitors here is, thus, based on a period of time before the change took place.

waterfront users are children and families. The spatial characteristics of CG I buildings are the provision of open space in front of each building, providing not only a great sense of the waterfront but also an important activity node and square. The different cultural functions of the CG I buildings is well distributed along the water's edge, maximising the potential of the whole waterfront space. It was found that the CG I buildings are well connected by the waterfront promenade. The promenade acts as a 'strategic cultural link' between the dispersed major cultural infrastructures, actually enabling the whole waterfront to have cultural attractions. Finally, the location of the Maritime Museum, one of the key CG I buildings, in the 'water surface realm' plays an important role in the interaction between the users and the water. Overall, the relationship between CG I buildings and their spatial structure, and the cultural waterfront is inter-dependent. The functions of CG I buildings and the people friendly spatial structure generates 'six interesting interaction processes' in the formation of the successful cultural waterfront (Figure 6.52).

**Figure 6.52:** Seven interaction processes of CG I buildings on the cultural waterfront

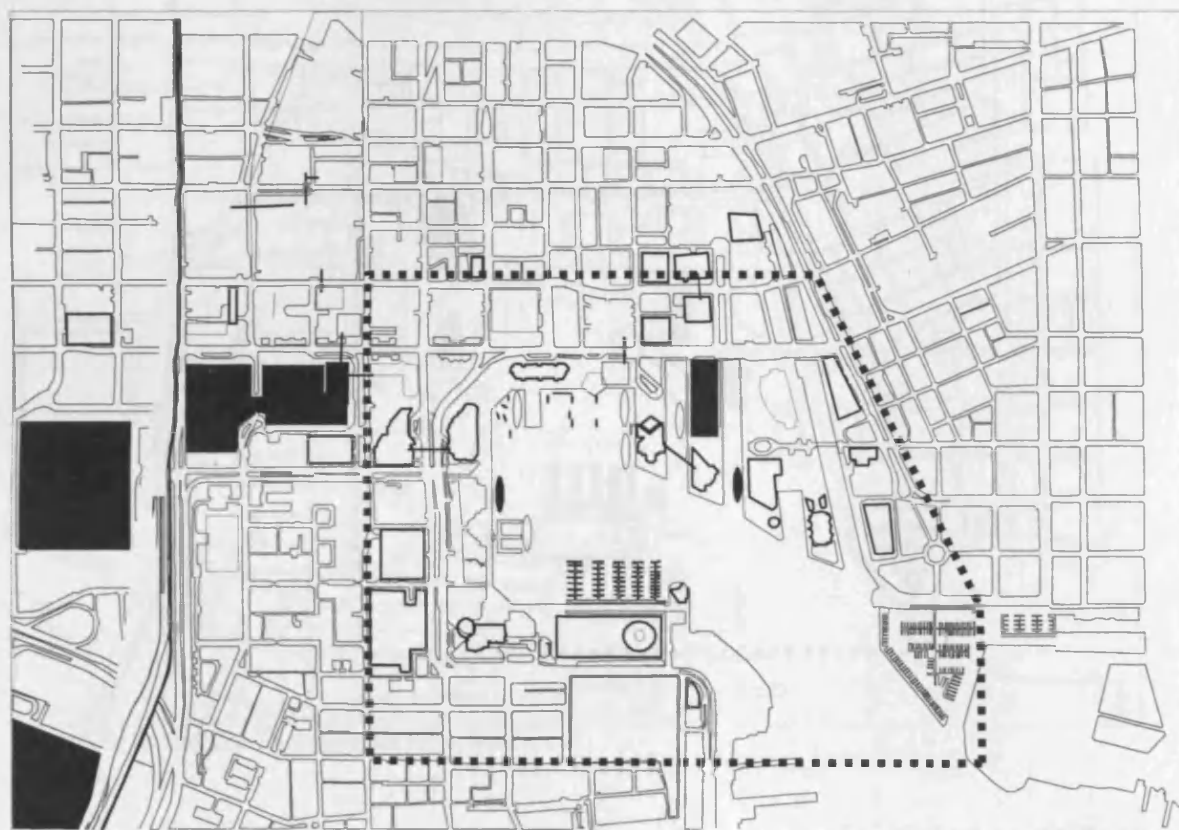


**Note:** Seven interaction processes generated by CG I buildings is based on the observational analysis in the case study area and literature review of the waterfront's built environment (section 6.1).

### CG II buildings on the cultural waterfront

Leisure and entertainment facilities in the case study area can be divided into three groups, depending on location. One is the entertainment facilities at the water surface realm – paddling boats, electric rental boats, cruise services, water taxis, tall ships and the marina. The other is the facilities on land in the case study area eg. the Power Plant. Another is outside the case study area e.g. the inland realm, the Convention Centre, The PSI net Stadium, and Oriole Park at Camden Yard (Figure 6.53).

**Figure 6.53:** Location of leisure and entertainment facilities in the case study area



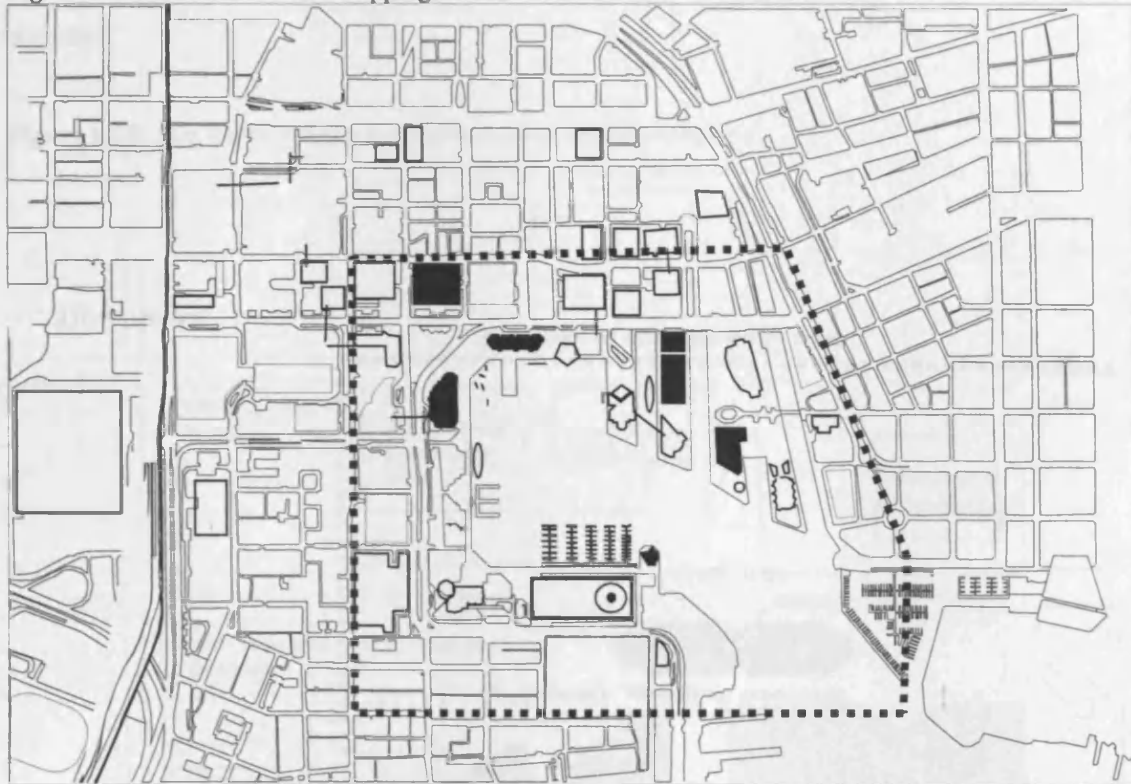
Robust leisure and entertainment activities are strongly related to the water and take place in the 'water surface' area. There include the water taxi, paddling boats, cruise service, and marina. They provide lively visual pleasure and create a vital waterscape. However, large scale CG II buildings such as the Convention Centre, Oriole Park at Camden Yard and the PSI net Stadium, are located outside the case study area. Even though they are located outside the waterfront vicinity, they are physically well connected by accessible streets. As a result, they play a significant role in attracting visitors to the waterfront area. Adaptive reuse of the historic Power Plant into an ESPN Zone and entertainment centre, with a book shop, café and game zone, at Pier 4 leads to important activity nodes alongside the 'water's edge'.



### CG III and IV buildings on the cultural waterfront

CG III and IV buildings in the case study area combine eating, shopping and entertainment on the waterfront (Figure 6.54). The combination near to the waterfront has resulted in a very popular activity node. However, the most successful achievement has been the concept of the 'festive marketplace' on the waterfront, which was exemplified by the success of Harbourplace with two pavilions, one in 1980 and the Gallery in 1981.

**Figure 6.54:** Restaurants and shopping facilities on the waterfront and inland

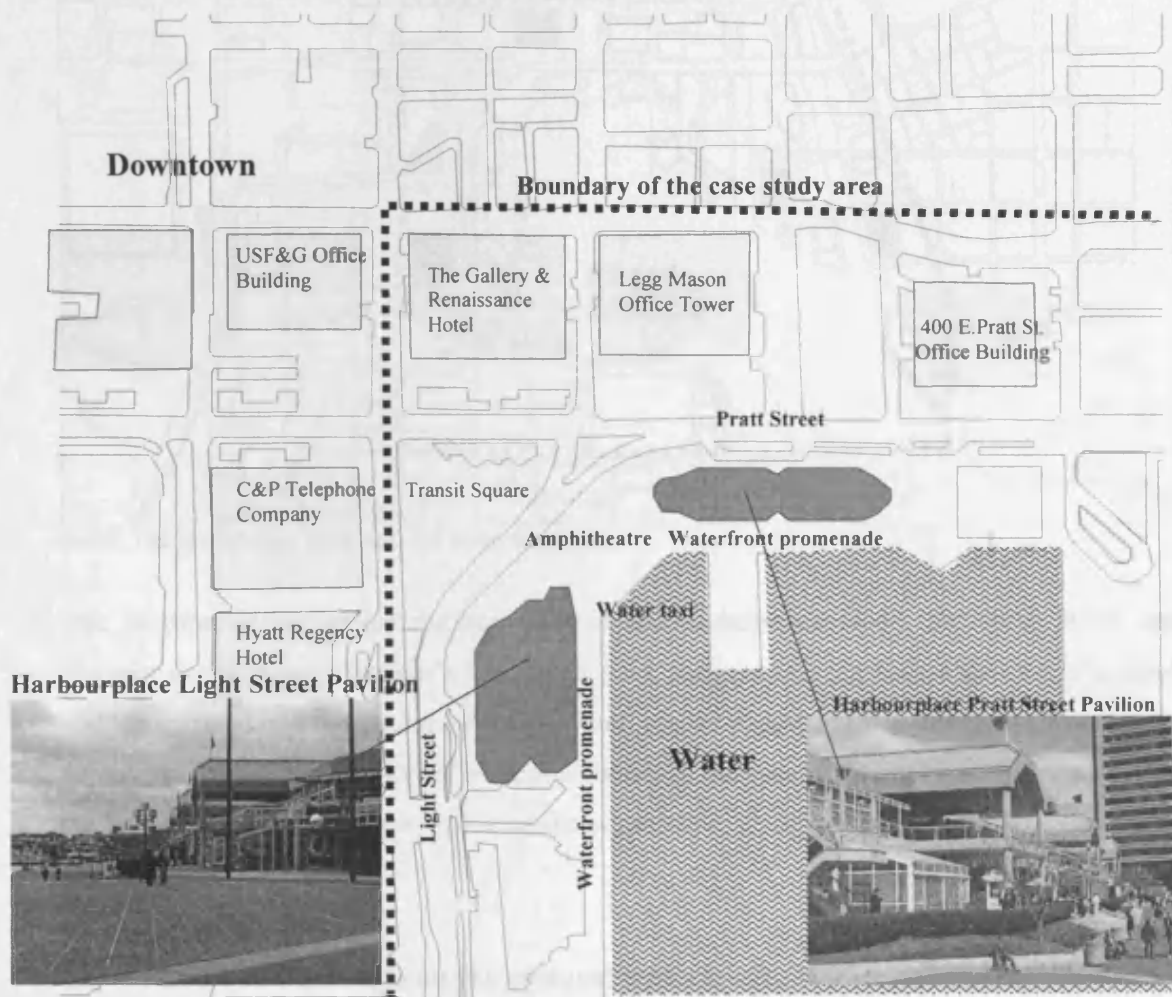


**Note:** The dotted line illustrates the waterfront area

Harbourplace consists of over 160 shops providing a diverse mix of retail on the waterfront, including food shops and authentic Maryland sea food restaurants along with entertainment experiences (Harbourplace Fact Sheet, 2002). The provision of multicultural food attracts different communities from downtown and provides a great opportunity for socialising. It also provides tourists and visitors with exotic experiences. "It annually attracts more than 10 million people from local, national and international regions. In addition, Harbourplace had 18 million visitors in its first year of operation, which ended in July 1981, and sales were well in excess of twice what a typical regional mall produces" (Urban Land Institute 1983: 152). From the perspective of the number of visitors, its success used to be compared to Disney World (Meyer, 1999; Keith, 1991).

Behind the success, the spatial structure relating to the water and the location of the Harbourplace in the 'foreground waterfront realm' played an important role, as well as implementation of the concept of the 'festive marketplace'. In addition, the success of the Harbourplace is also supported by "all the surrounding components necessary for a genuine focus on city life: active commercial city centre; cultural and public institutions; retail and leisure facilities as well as the recreational focus of the park and the harbour itself; mixed-use designation truly applied to this place" (Green 1993: 303). As Figure 6.52 shows, the spatial structure of the Harbourplace is characterised by people, activity, and an event-oriented spatial structure.

**Figure 6.55:** The spatial structure of Harbourplace on the waterfront



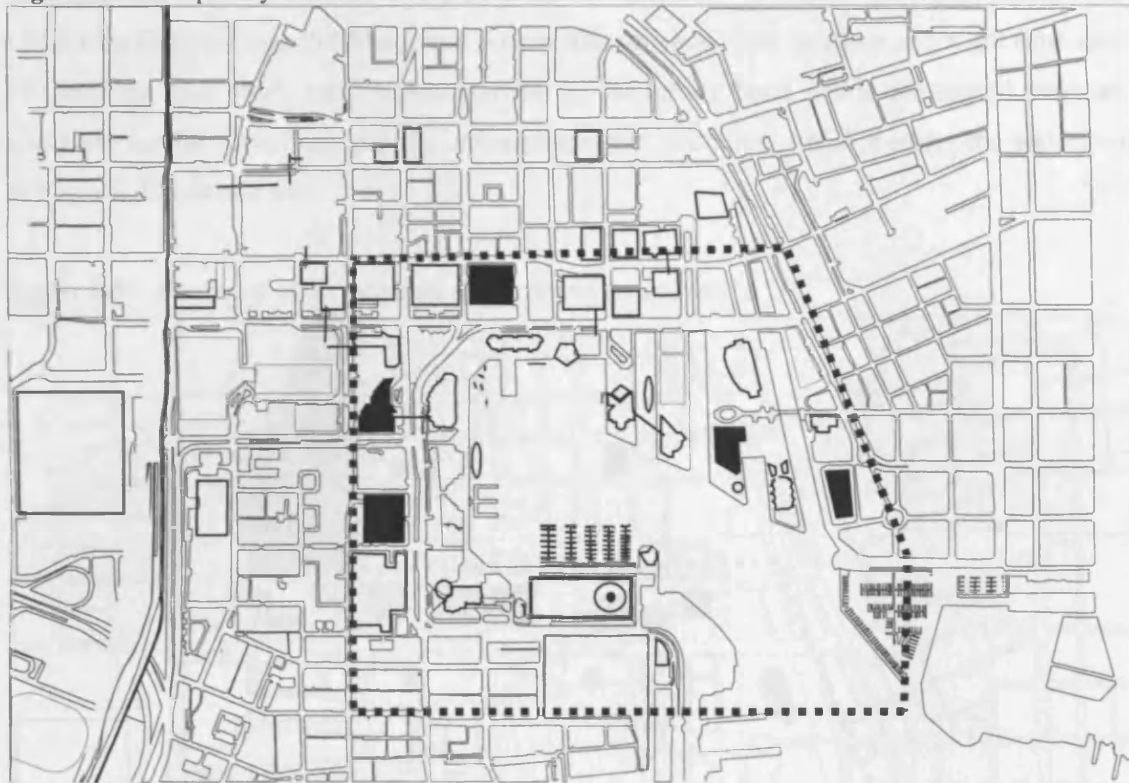
### **CG V buildings on the cultural waterfront**

During the late 1970s and the 1980s, with the growing success of the waterfront as an international tourist attraction, construction of accommodation for tourists and visitors both in the case study area and inland was inevitable to sustain this success. In the case study area,



there was the construction of several hotels – the Hyatt Regency Hotel (1981), the Sheraton Inner Harbour Hotel (1985), the Harbour Court Hotel (1986), the Renaissance Hotel (1988), Harrison's Pier 5 (1989), and the Courtyard Marriott (2000). It was also found that there was robust activity in hotel construction outside the case study area during the 1980s and 1990s.

**Figure 6.56:** Hospitality facilities on the waterfront and inland



**Note:** The dotted line illustrates the waterfront area

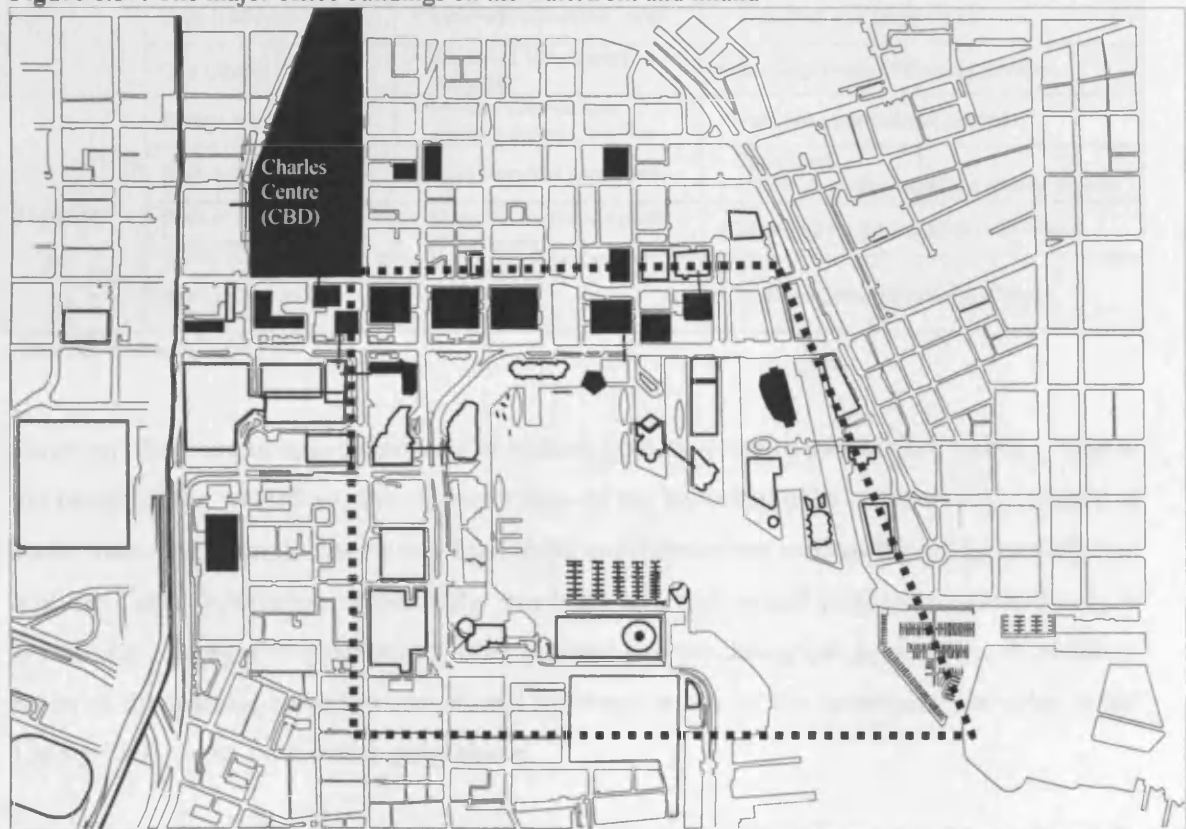
The location of the accommodation such as the Renaissance Hotel, the Hyatt Hotel, the Harbour Court Hotel, Harrison's Pier 5 and the Courtyard Marriot within the 'water's edge' and 'foreground and the background waterfront' realms resulted in the creation of world class accommodation and provision of 24 hour activities in the case study area. The location near to the water provides customers with a scenic waterscape, along with leisure and entertainment opportunities.

### **CG VI and VII buildings on the cultural waterfront**

One of the prominent characteristics of the case study area is that it is surrounded by office buildings along Pratt Street because the waterfront directly links to the downtown (Figure 6.57). In addition, residential blocks are located on the east, south and west sides of the waterfront. Both the CG VI and VII buildings have less influence on the cultural waterfront compared to the other cultural facilities, but they are important attractors of waterfront users during the day and night.

The spatial structure of the arrangement of office and residential buildings, both within the case study boundary and in the outside areas, tends to be an important source for users of the waterfront. In addition, all buildings are strongly related to the needs of local users rather than tourists and visitors who may only occasionally visit the waterfront. As a result, the CG VI and VII buildings provide an important magnet for the locals, being less affected by seasonal variations in tourist numbers. For example, the existence of the World Trade Centre and Columbus Centre along the waterfront promenade provides both daytime and night time uses. In short, the case study area is characterised by the strong bond within the spatial structure, and between the waterfront and the office/residential buildings, which enables the waterfront to be used 24 hours a day.

**Figure 6.57:** The major office buildings on the waterfront and inland



**Note:** Waterfront area (USF&G(1973), IBM building(1975), C&P Telephone Co.(1977), World Trade Centre(1977), Columbus Centre(1992), 400 E. Pratt St. Office building(1982) and 16 Legg Masson Office Tower(1988).

### 6.3.2.3 Analysis of historical artefacts and the waterfront

Historical artefacts are divided into three categories within the case study area - historic 'buildings', 'objects' and 'places' (Figure 6.58). There had been large-scale demolition along the west and north sides of the waterfront in the redevelopment period during the 1960s and 1970s. Not many historic buildings are now found in the case study area, apart from the Powerplant and the Public Works Museum in the 'foreground waterfront realm'.

**Figure 6.58:** List of historic artefacts and their previous and current uses

Historic artefacts	Name	previous function	current function
<b>1. buildings</b>	Powerplant	▪ Old electric power plant of Baltimore Gas & Electric Co.	▪ Family entertainment emporium Entertainment complex – Hard Rock café, bookshop, ESPN zone
	Public Work Museum	▪ Sewage pumping station	▪ Museum for tunnel, roads, bridges, clean water and recycling waste water
<b>2. objects</b>	USS Constellation	▪ US naval ship (1853- 1933)	▪ Maritime museum (first tourist attraction)
	USS Torsk Submarine	▪ Served during WWII	▪ Maritime museum
	Lightship Chesapeake	▪ Lightship at the entrance to Chesapeake and Delaware Bays	▪ Maritime museum
	Coast Guard Cutter Taney	▪ Coast guard ship surviving the Pearl Harbour attack	▪ National historic landmark
	Seven Foot Knoll Lighthouse	▪ Lighthouse at Chesapeake bay	▪ Maritime Museum
	Pride of Baltimore II	▪ Good will ambassador	▪ Replacement of Pride of Baltimore lost during a navigation
	Lady Baltimore	▪ Luncheon and dinner cruise	▪ Luncheon and dinner cruise
	City Clipper	▪ Replica of 19 <sup>th</sup> Century Schooner	▪ Real experience of the past function
<b>3. places</b>	Federal hill	▪ Military observational platform during Civil War	▪ Park and observational platform
	Rash field	▪ Rash Memorial sports park	▪ Sports park ▪ City-wide public events and athletic contest
	Pride of Baltimore Memorial park	▪ Memorial for the lost pride of Baltimore	▪ Memorial for the lost pride of Baltimore
	water surface itself	▪ Transportation ▪ Industrial ▪ Leisure	▪ Transportation, industrial and leisure

Source: Author (2004)

However, there are unique collections of historic objects in the ‘water surface’ realm. Due to the nature of the waterfront, the characteristics of the historical objects are strongly related to water uses. For example, the reuse of tall ships and submarines such as the USS Constellation and the Torsk Submarine respectively, has been undertaken and plays an important role in generating a sense of the waterfront from a visual and psychological perspective. In addition, reuse of the historic ships for educational purposes is one of the prominent activities in the Living Classrooms Foundation programme.

Preservation of historic places includes the whole south side of the waterfront in the case study area – Federal Hill and Rash Field – straddling the water’s edge, foreground waterfront and background waterfront realms. Consequently, this has become both an important open space for users and a structuring element in the overall image of the waterfront. The most important findings must be the consideration of the ‘water surface’ realm as an historic place because the existence of the water has brought civilisation into these areas and sustained it to the present day.

It is interesting that the historic artefacts also become important structuring elements in the creation of the image of the cultural waterfront, like a landmark building in the waterfront spaces. Because of the unique visual feature of the ships inviting users to the water's edge, Tall ships such as the USS Constellation are located at a waterfront gateway, and are typical examples of structuring elements . As a result, the ships function like buildings in the 'water surface' realms. They function as 'a point' in the spatial structure of the waterfront space, attracting visitors and providing a valuable meaning to the place. In the case of the 'water surface realm', it can be said that the ships reinforce the sense of a historical place on a grand scale.

### **6.3.3. Key findings and conclusions**

The analysis of the morphology in the case study area produced some important findings, which became a foundation for the cultural use of the waterfront. Firstly, urban waterfront form between the existing downtown and the waterfront was highly accessible for vehicles and pedestrians, with 26 identified routes to the four-sided waterfront area. In addition, the accessible routes provided visual and psychological accessibility through the careful control of the location of the buildings in the five realms of the waterfront, especially between the background and foreground waterfront realm. However, despite high accessibility for both cars and people, heavy traffic movement between the background and foreground waterfront realms bisected the waterfront and produced noise and pollution. Secondly, an interesting finding in the morphological analysis was the identification of the water surface realm as a place described as the waterscape environment, which has various types of floating object that function like the built environment inland. In particular, the water surface realm can be considered from a psychological perspective to be a natural square, although accessibility is very limited without using ships or boats. Thirdly, the three components of the built environment are well arranged in a balanced way along the overall waterfront. Ample open space, parks, parking spaces and many activity nodes along the water's edge provide an important foundation for public use and various types of activity. First of all, all three components of the built environment are visually and physically connected to the water. As a result, the overall spatial structure provides a clear sense of the waterfront.

Finally, the dedication of the water's edge as public space and a waterfront promenade (95 acres and 1.45 mile long in the case study area) was a key structural element in the overall morphology, and acted as a backbone for the cultural uses.

## **6.4 Survey Analysis**

### **6.4.1 An observational analysis**

The previous sections have investigated the spatial structure and the built environment of the waterfront in the case study area. The investigation, however, relied largely on a static physical perspective rather than an examination of the intangible content, dynamic uses, activities, and response of the users to the built environment and the water. Thus, the following observational analysis looks at how the physical setting of the built environment of the waterfront interacts with the rest of the five components that constitute the cultural waterfront (section 4.3.2) – users, events/programmes and the water – and what kinds of activity patterns were generated by the interactions.

Through the examination, it may be possible to see what types of relationship exist - within the physical settings (the urban waterfront form and the built environment), the users, the events and programmes, and the water - that create the cultural waterfront. The interaction of the five components is diverse and complex. Because of this, it is necessary to observe the uses and activity patterns systematically to find out what kind of spatio-functional relationship exists between the five components that generate the various cultural uses and activities. To do this, the case study area was sub-divided into 11 sections (see Figure 6.59 and section 5.4.2.1 for details of the observational method).

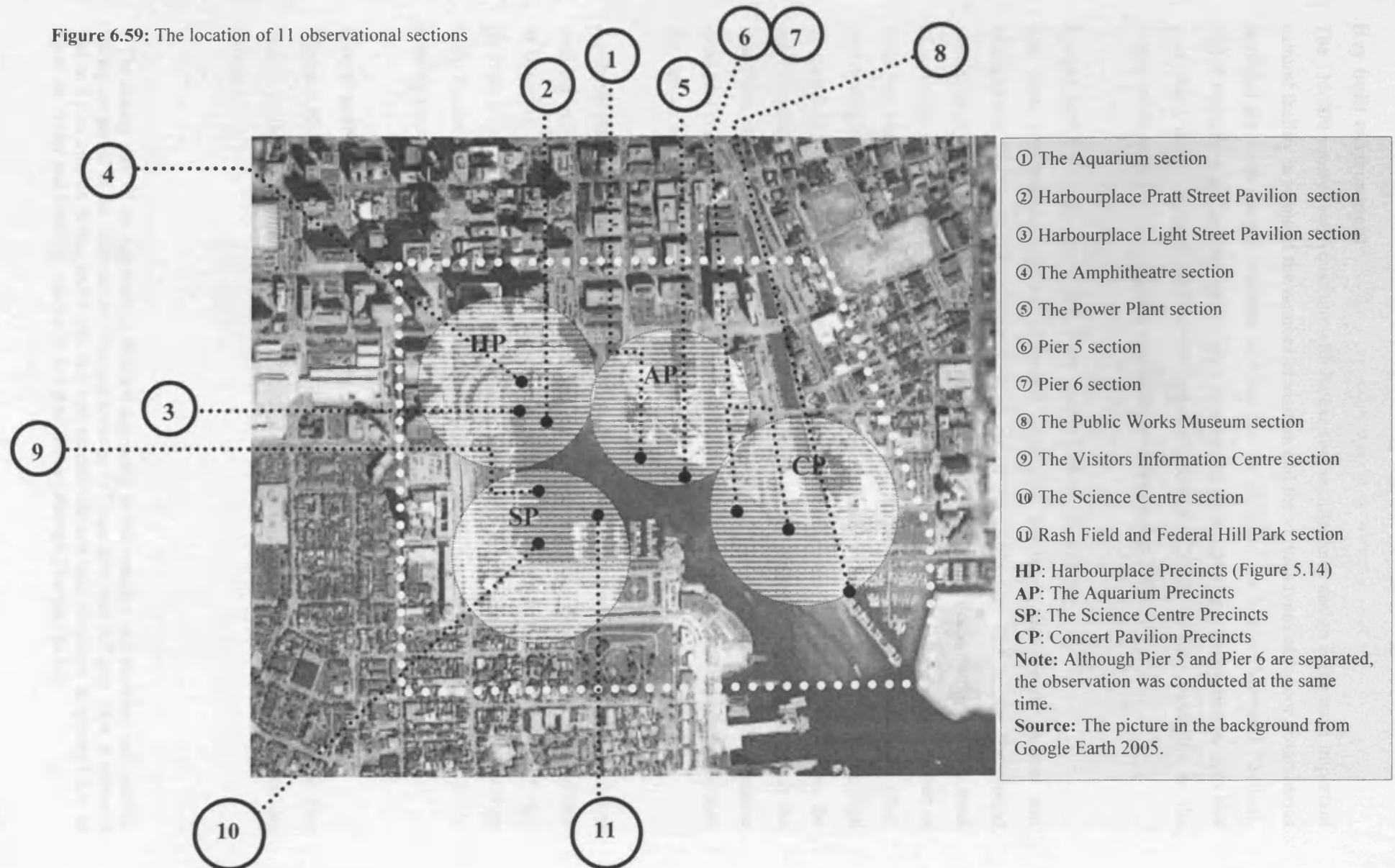
#### **6.4.1.1 Observational analysis for 11 sections**

##### **1) The Aquarium section**

###### **About the section**

The Aquarium section is characterised by the location of the Aquarium, which is situated at the end of Pier 3. Because Pier 3 projects out into the water, it creates a unique morphology at the water's edge, characterised by a long narrow peninsular with three sides surrounded by water (Figure 6.60). As a result, this section takes full advantage of the panoramic waterscape. Unlike other sections, there are no buildings in the foreground waterfront realm. In addition, due to the position of the Aquarium at the end of Pier 3, the section has a continuous open space structured from the entrance of the Aquarium to the square, Pratt Street, the parking lot and the background waterfront realm (Figure 6.61). This openness enables Pier 3 to provide a foreground waterfront with great potential for public congregation between the Aquarium and the background waterfront realm.

Figure 6.59: The location of 11 observational sections



### **Key built environment**

The 115,000 square feet Aquarium with its exciting architectural design is the most important cultural facility in terms of the number of visitors and the various types of indoor programmes provided for local people, students and tourists. In addition, the Marine Mammal Pavilion, which contains a 1.2 million gallon pool surrounded by a 1,300 seat amphitheatre, provides year-round theme exhibits and events (general press kit, 2002). A new extension to the Aquarium to cater for its increasing popularity was finished in 2004.

### **Users' activity types, patterns, flow and levels of clustering**

The flow and activity pattern of crowd clustering levels in the overall section was characterised by consistent clustering in front of the Aquarium and in the foreground waterfront realm from around 10 am to closing time<sup>16</sup>. Figure 6.62 demonstrates that the level of activities varied depending on the time of the day. Substantial gathering and the number of users are higher during the weekend than weekdays; during the daytime than at night time; and during event days. In the case of event days, the level of clustering was extremely high (Figure 6.63). Although the concentration of activity was different depending on the time, the activity patterns and use of the waterfront space by users had a similar pattern. When the Aquarium closed, massive clustering and activities suddenly decreased and the area became quiet (see picture 12 in Figure 6.62). The Aquarium and its opening hours directly influenced the various activities and density of visitors.

As demonstrated in Figure 6.62, in the morning the water's edge was used for jogging and walking by local people and hotel users. In the afternoon and the evening, most activities such as ticketing, waiting and entering, were directly related to the Aquarium. From the coach stop on Pratt Street to the front of the Aquarium, the area was used by groups and children for their visit. However, in the evening, this section had little activity compared to other sections in the evening hours.

### **Users' activity patterns in the five realms of the waterfront**

Figure 6.62 demonstrates the activity patterns and use of the built environment in the five realms of the waterfront space in this section. Each realm had different usage and activity patterns.

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<sup>16</sup> The closing time of the Aquarium is different depending on the weekday and weekend, and seasons. During the period of the observational analysis between 18<sup>th</sup> June 2004 and 20<sup>th</sup> July 2004, it opened 9 a.m. to 8 p.m. only on Friday, and 9 a.m. to 5 p.m. all other days in June. However, it opened 9 a.m. to 8 p.m. on Friday and Saturday, and 9 a.m. to 6 p.m. Sunday through Thursday in July.



**Figure 6.60:** The Aquarium section in 2002 (top) and under expansion (bottom) in 2004

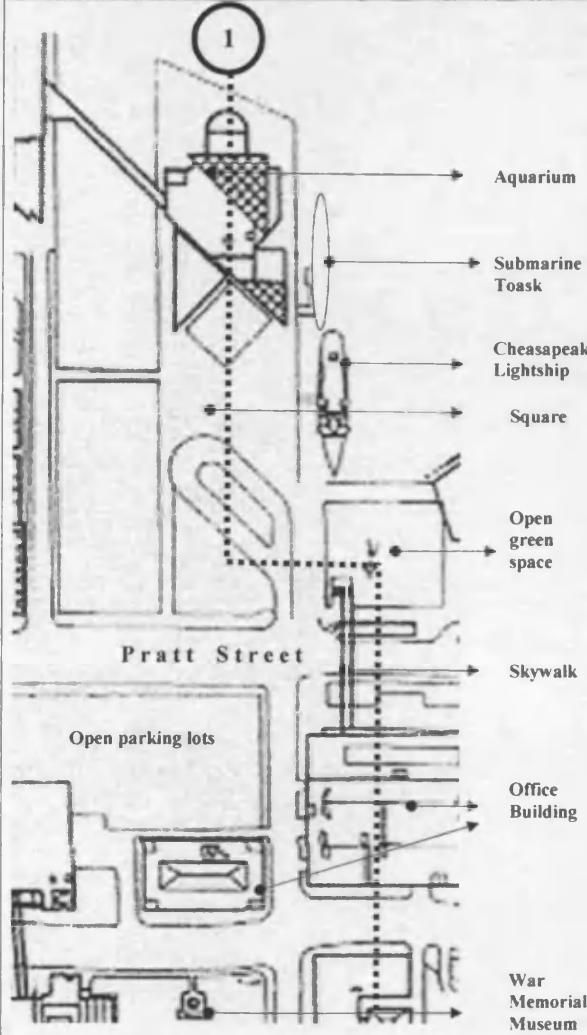







**Source:** Author – top ( April 2002), bottom (June 2004)

**Note:** The Aquarium extension was under construction during the observational analysis in 2004. Thus, the observational analysis of the Aquarium section was based on both the 2002 and 2004 data. There were limitations in observing people's activity patterns during the fieldwork in 2004 because of the fence surrounding the Aquarium.



Figure 6.61: The built environment and activity patterns in the five realms of the Aquarium section

Observational section	Realms	Analysis of the built environment and activity patterns		
		Built environment	User's activity patterns	Key findings
 <p>Diagram labels: 1, Aquarium, Submarine Toask, Cheasapeak Lightship, Square, Open green space, Pratt Street, Skywalk, Open parking lots, Office Building, War Memorial Museum.</p>	Water Surface	 <ul style="list-style-type: none"> <li>▪ Landmark floating object Cheasapeak Lightship &amp; the Submarine Toask</li> </ul>	<ul style="list-style-type: none"> <li>▪ Visual contact with water feature</li> <li>▪ Looking at objects (e.g. ships) on the water surface</li> </ul>	<ul style="list-style-type: none"> <li>▪ floating and moving objects on the water surface gives the sense of waterfront and visually enjoyable environment</li> </ul>
	Water's edge	 <ul style="list-style-type: none"> <li>▪ Aquarium</li> </ul>	<ul style="list-style-type: none"> <li>▪ entering the aquarium through the corridor is dominant</li> <li>▪ people try to walk near to the water's edge</li> <li>▪ three side projecting piers increase the user's experience with the waterscape</li> </ul>	<ul style="list-style-type: none"> <li>▪ underused compared to other water's edge</li> <li>▪ but it becomes an important venue for watching firework during event day</li> </ul>
	Foreground waterfront	 <ul style="list-style-type: none"> <li>▪ Public open space (2002)</li> <li>▪ Under construction for expansion (2004)</li> <li>▪ Waterfront promenade + two bridges</li> <li>▪ Box office</li> <li>▪ Car and coach dropping roundabout</li> <li>▪ Green open space</li> <li>▪ Public art</li> <li>▪ Skywalk to parking building</li> </ul>	<ul style="list-style-type: none"> <li>▪ Group gathering</li> <li>▪ Family gathering</li> <li>▪ Standing and waiting for ticketing (Aquarium &amp; Maritime museum)</li> <li>▪ Entering the Aquarium</li> <li>▪ Walking from Harbourplace to Power Plant and vice versa</li> <li>▪ Resting place – sitting and watching water</li> <li>▪ Standing for the next journey</li> </ul>	<ul style="list-style-type: none"> <li>▪ unique landmark architectural design</li> <li>▪ Aquarium located at water's edge</li> <li>▪ Jetting pier into the water gives the water's edge three contact sides</li> <li>▪ The provision of direct access (both pedestrians and vehicles) to the Aquarium from Pratt Street for group visitors and tourists</li> </ul>
	Back ground Waterfront	 <ul style="list-style-type: none"> <li>▪ Pratt Street for vehicles and pedestrians</li> <li>▪ Skywalk to parking building</li> <li>▪ Office building</li> <li>▪ Open green space</li> </ul>	<ul style="list-style-type: none"> <li>▪ Pratt Street for vehicles and pedestrians and has constant pedestrian flow along the Street</li> <li>▪ Walking through the skywalk from the parking building to Aquarium square but very minor compared to crossing under the Bridges</li> </ul>	<ul style="list-style-type: none"> <li>▪ Important gathering and relaxing open spaces for tourists</li> <li>▪ In particular, the children's playground in the green space</li> </ul>
	Inland	 <ul style="list-style-type: none"> <li>▪ War Memorial Museum (Jewish)</li> <li>▪ Office building</li> <li>▪ Parking building</li> <li>▪ Baltimore Community College</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provides accessible &amp; spacious parking space and walkway to the Aquarium</li> </ul>	<ul style="list-style-type: none"> <li>▪ Very calm and low activities</li> <li>▪ Distinctive functional discontinuity between background and foreground waterfront</li> </ul>

On the one hand, the greatest diversity of activity and clustering took place in the spacious foreground waterfront and water's edge. On the other hand, passers-by, traffic movement, and car parking activity dominated the background waterfront and inland realms. There were few interactions between people in that realm. However, the water's edge was surrounded by water on three sides and provided a picturesque waterscape with pedestrians. The USS Toask submarine and Chesapeake Lightship, located at water's edge, drew people along the water's edge realm. During the event day, the foreground waterfront realm was fully occupied by people waiting for the fireworks.

### **Key findings**

The observation of the Aquarium section clearly demonstrated the relationship between the Aquarium, its users, the events and the water. Major implications can be summarised in several findings. Firstly, it is obvious that CG I buildings are important as a magnet and key activity generator stimulating activity patterns related to the original function of the Aquarium. Continuous clustering, creating a critical mass of users undertaking various related activities, were sustained throughout the day from opening to closing time of the Aquarium. Secondly, the design of the physical setting, in particular the foreground waterfront realm, as a significant public open space, enabled the place to accommodate not only a consistent use and many users of the Aquarium and users from other waterfront attractions. In addition, the elongated water's edge increased the enjoyment of the waterscape.

Thirdly, this section has high accessibility for both pedestrians and vehicles. Regarding the pedestrian connection to this section, the highly accessible waterfront promenade and pedestrian road along Pratt Street is directly connected to the foreground waterfront realm. The roundabout in the foreground waterfront for coaches, minibuses and cars allowed group visitors and individuals. Finally, a year-round indoor programme plays an important role in attracting people and creating liveliness in the Aquarium section.

Figure 6.62: Various faces of the Aquarium section during the weekday, weekend and event days

	Weekdays	Weekends	Event days
8 - 9	 1 (08:56, Friday, 25 July 2004)	 7 (08:49, Sunday, 20 <sup>th</sup> June 2004)	 13 (9:23, Friday 2 <sup>nd</sup> July 2004)
10 - 11	 2 (10:30, Friday, 25 <sup>th</sup> June 2004)	 8 (10:28, Sunday, 20 <sup>th</sup> June 2004)	 14 (10:43, Friday, 2 <sup>nd</sup> July 2004)
12 - 13	 3 (12:01, Friday, 25 <sup>th</sup> June 2004)	 9 (12:42, Sunday, 20 <sup>th</sup> June 2004)	 15 (13:14, Friday 2 <sup>nd</sup> July 2004)
14 - 15	 4 (15:19, Friday, 25 <sup>th</sup> June 2004)	 10 (15:07, Sunday, 20 <sup>th</sup> June 2004)	 16 (13:15 Friday, 2 <sup>nd</sup> July 2004)
17 - 18	 5 (17:30, Friday, 25 <sup>th</sup> June 2004)	 11 (17:59, Sunday, 20 <sup>th</sup> June 2004)	 17 (18:49, Sunday, 4 <sup>th</sup> July 2004)
19 - 22	 6 (17:59, Friday, 25 <sup>th</sup> June 2004)	 12 (19:41, Sunday, 20 <sup>th</sup> June 2004)	 18 (18:48, Sunday, 4 <sup>th</sup> July 2004)

Source: All pictures in the table taken by the author (2004)

Figure 6.63: Analysis of activity types, patterns and levels of clustering along the Aquarium section throughout the day



Activity types and the transformation of activity patterns during the day							Key findings
The detail of typical activity		8:00 - 9:00	10:00 - 11:00	12:00 - 13:00	14:30 - 15:30	17:00 - 18:00	
Weekdays	Jogging along the promenade	■	□	○	○	■	+ During the morning (8:00-9:00am) jogging and going for a walk is dominant by local people + Aquarium generates huge gatherings for ticketing and entering + The gathering and entering of the Aquarium gradually increases around 10:00 am and constant until 5:00pm + The major pedestrian flow between WTC, the Power Plant and the flow is almost constant after midday to 7:00pm + Family group and children's visits are dominant
	going for a walk along the promenade	■	■	○	○	■	
	passing pedestrian bridge	○	□	■	■	■	
	family gathering & visiting	●	■	■	■	■	
	group gathering & visiting	○	□	■	■	■	
	children playing in the public space & public art	○	□	■	■	■	
	ticketing	○	□	■	■	■	
	crossing between background and foreground waterfront	○	●	■	■	■	
	Waiting to enter (aquarium + maritime museum)	○	□	■	■	■	
	boating (rental)	○	□	■	■	■	
	car & coach dropping and parking	○	□	■	■	■	
	sitting, talking & watching waterscape	□	■	■	■	■	
	standing for next journey	□	■	■	■	■	
	eating on outdoor benches	○	■	■	■	■	
	pedestrian flow along the water's edge (city workers)	■	■	■	■	■	
Weekends	Jogging along the promenade	■	□	○	○	○	++ Aquarium generates huge gatherings for ticketing and entering from 10:00 am ++ Coach, van, car dropping next to ticket office is very frequent and provides effective & accessible to the Aquarium ++ Group visiting is a typical pattern during the day ++ Ticketing and entering numbers are huge from 10:00 am until 7:00pm ++ Pedestrian flow fills with the promenade and is constant during the whole day ++ Family group and children's visit are dominant
	going for a walk along the promenade	■	□	□	□	□	
	passing pedestrian bridge	□	■	■	■	■	
	family gathering	●	■	■	■	■	
	group gathering	○	■	■	■	■	
	Children playing in the open space & public art	○	■	■	■	■	
	ticketing	○	■	■	■	■	
	Waiting to enter (aquarium + maritime museum)	○	■	■	■	■	
	boating (rental)	○	■	■	■	■	
	car & coach dropping and parking	●	■	■	■	■	
	sitting, talking & watching waterscape	□	■	■	■	■	
	standing for next journey	○	■	■	■	■	
	eating on outdoor benches	○	□	□	□	□	
	pedestrian flow along the water's edge	□	■	■	■	■	
Event days (Tall Ship Exhibition + Independence Day)	Jogging along the promenade	■	□	○	○	○	+++ Green Open Space started to fill with people watching the fireworks +++ Pedestrian flow is tremendously increased along the promenade before the Fireworks for 'the Fourth July Sailabration'
	going for a walk along the promenade	■	□	□	□	□	
	passing the pedestrian bridge	□	■	■	■	■	
	family gathering	□	■	■	■	■	
	group gathering	□	■	■	■	■	
	Children playing in the open space & public art	□	■	■	■	■	
	ticketing	○	■	■	■	■	
	Waiting to enter (aquarium + maritime museum)	□	■	■	■	■	
	boating (rental)	○	■	■	■	■	
	car & coach dropping and parking	□	■	■	■	■	
	sitting, talking & watching waterscape	□	■	■	■	■	
	standing for next journey	□	■	■	■	■	
	eating outdoor benches	□	■	■	■	■	
	pedestrian flow along the water's edge	□	■	■	■	■	
	++ Tall Ship Gathering at Mammal Pavilion	□	■	■	■	■	
	+ ++ watching firework July 4 <sup>th</sup> Sailabration	□	■	■	■	■	

Note: 1. The symbols '+', '++', '+++' in the table represent the main characteristics of user's activity types and their transformation during weekday, weekend and event days.

Although weekend and event days have similar activity types to weekday, there were found to be different activity types during weekend(++) and event days(+++).

Thus, only new activity types and their characteristics are added to key findings for weekend and event days.

2. The categories of the transformation of activity types during the day are based on the on-spot observational analysis and video footage analysis after the fieldwork.

However, the categories are not based on exact numbers of people. They are mainly based on the author's perception. In addition, the transformation of each activity type is Independence.

## 2) Harbourplace Pratt Street Pavilion section

### About the section

This section was characterised by a combination of different functions in the 'townscape environment' and 'waterscape environment'. The USS Constellation permanently anchored at Pier 1 provided a unique floating landmark and attraction in the water surface realm. The Harbourplace Pratt Street Pavilion in the foreground waterfront realm and the Gallery in the background waterfront realm were connected by a skywalk overcoming the heavy traffic movement on Pratt Street. As a result, it has functional and spatial continuity from the water surface realm, to the foreground waterfront and background waterfront to the inland realm compared to other sections. In addition, it has a very accessible connections to the downtown and the waterfront (Figure 6.64). In particular, a waterfront gateway, which also functions as an open amphitheatre, was created between the Harbourplace Light Street section and this section, establishing an important corridor between the downtown area and the waterfront. 1,150 open parking spaces in the background waterfront realm of this section enhanced its accessibility for car users.

**Figure 6.64:** The overall view of the Pratt Street Harbourplace section





### **Key built environment**

In terms of the characteristics of each building along this section, there are four important features - USS Constellation, Paddling Boat, The Harbourplace, The Gallery and the Open parking lot - which influenced users' activities (Figure 6.65). Since opening in 1980, Harbourplace has been the most successful addition to the waterfront, enhancing cultural uses. The Harbourplace Pratt Street Pavilion features retail speciality shops and five restaurants and cafes with outstanding harbour views. In addition, the Gallery at Harbourplace consists of about 75 shops, restaurants, eating places, and the 622 guest room Renaissance Hotel. With two other Harbourplace Pavilions, it attracts about 10 million annual visitors from local, national and international regions for shopping, eating and entertainment within the panoramic waterscape. In addition, the low-rise architectural design with human scale makes the building a people-friendly environment. The adaptive reuse of the naval relic, USS Constellation, at Pier 1 into a maritime museum with entertainment and educational facilities has created an important activity node and a landmark at the waterfront gateway. The Paddling Boat at Pier 1 in the water surface realm is a robust facility for children and families.

### **Users' activity types, patterns, flow and levels of clustering**

The key characteristics of users' activity patterns in this section highlighted that both the townscape environment and waterscape environment generated various activities. As Figure 6.65 illustrates, activities related to floating ships and paddling boats in the waterscape environment were very strong with the function of the Harbourplace Pratt Street Pavilion. Because of the influential functions of these two environments, activity patterns on the water surface, at the water's edge, and foreground waterfront realm were consistent from morning to evening (Figure 6.67). In addition, unlike the Aquarium section, dining activity at the Harbourplace lasted until late evening (until 10 p.m.) resulting in the heaviest pedestrian traffic from morning to late evening.

On the one hand, outdoor activity patterns were strongly related to the USS Constellation and the Paddling Boat rental in the water surface realm. On the other hand, indoor activities were mostly related to the functions in the Harbourplace Pratt Street Pavilion, which comprised shopping, eating and entertainment facilities. Eating activities at outdoor cafes and restaurants were typically busy throughout the day. The multi-functional use of Harbourplace and The Gallery in the foreground and background waterfront realm respectively was also identified as a significant magnet drawing users. First of all, the observation easily found evidence for and the power of the concept of, the 'festive marketplace' in animating the waterfront space (Figure 6.65). Paddling boats in the water surface realm attracted many children and families

from afternoon to evening (6 in Figure 6.61). The unique historic USS Constellation in the water surface realm also played an important role in structuring the image of the waterfront, creating a symbolic landmark. Because of the balanced function between ‘the waterscape environment’ and ‘the townscape environment’, the level of visitor numbers reached a peak around 12 p.m. and lasted until 10 p.m. During the weekend and event days, especially on event days, the number of visitors and the various activities were extremely high (18 in Figure 6.65)

### **Users’ activity patterns in the five realms**

Unlike the Aquarium section, this section is characterised by a balanced usage from the water surface to the background waterfront realm because of the skywalk that connects downtown to the foreground waterfront realm. Two entrances at both front and back of the Harbourplace in the foreground waterfront realm gave people direct access from the waterfront promenade to Pratt Street. The water’s edge realm with pedestrian promenade was the busiest area on the entire waterfront from morning to evening, and from weekday and weekend to event days. The water surfaces realm had equally robust activities with the paddling boats and the USS Constellation.

### **Key findings**

Because of the combination of two types of built environment – townscape environment (e.g. two Harbourplace Pavilions and the Gallery) and waterscape environment (e.g. USS Constellation, water taxis, boats, and water bus), this section attracts users from these two environments. In particular, the floating landmark ship, USS Constellation creates a dominant image on the whole waterfront beyond this section. As a result, it has many visitors, strong pedestrian flow and consistent opportunities for enjoyment.

**Figure 6.65:** Various faces of the Harbourplace Pratt Street section during weekdays, weekends and event days

	Weekdays	Weekends	Event days
8 - 9	 1 (08:54, Thursday, 24 <sup>th</sup> June 2004)	 7 (08:34 Saturday, 26 <sup>th</sup> June 2004)	 13 (09:09, Thursday, 1 <sup>st</sup> July 2004)
10 - 11	 2 (10:36 Thursday, 24 <sup>th</sup> June 2004)	 8 (10:19, Sunday 28 <sup>th</sup> June 2004)	 14 (10:41, Thursday, 1 <sup>st</sup> July 2004)
12 - 13	 3 (11:58, Thursday 24 <sup>th</sup> June 2004)	 9 (12:03, Saturday, 26 <sup>th</sup> June 2004)	 15 (12:13, Thursday, 1 <sup>st</sup> July 2004)
14 - 15	 4 (15:27, Thursday 24 <sup>th</sup> June 2004)	 10 (13:02 Saturday, 26 <sup>th</sup> June 2004)	 16 (14:00, Saturday, 3 <sup>rd</sup> July 2004)
17 - 18	 5 (16:32, Thursday, 24 <sup>th</sup> June 2004)	 11 (17:26 Saturday 19 <sup>th</sup> June 2004)	 17 (15:21, Sunday, 4 <sup>th</sup> July 2004)
19 - 22	 6 (19:23, Thursday, 24 <sup>th</sup> June 2004)	 12 (19:53 Saturday 19 <sup>th</sup> June 2004)	 18 (19:53, Sunday, 4 <sup>th</sup> July 2004)

**Source:** All pictures in the table taken by the author (2004)



Figure 6.66: The built environment and activity patterns in the five realm of the Harbourplace Pratt Street Pavilion section

Observational section	Realms	Analysis of the built environment and activity pattern			
			Built environment	Activity Patterns	Key Findings
	Water Surface		<ul style="list-style-type: none"> <li>USS Constellation</li> <li>Paddle boat &amp; floating platform</li> <li>Tall Ship – Pride of Baltimore II (during event days)</li> </ul>	<ul style="list-style-type: none"> <li>Gathering for paddling boat and wearing safety jacket</li> <li>Navigating the paddling boat in the water</li> <li>Tall Ship anchoring at Pier 1 changing the level of use at Pier 1</li> </ul>	<ul style="list-style-type: none"> <li>Function of symbolic landmarks at the gateway</li> <li>Visual pleasure</li> </ul>
	Water's edge		<ul style="list-style-type: none"> <li>Public art (Canon, Anchor, wheel)</li> <li>Benches</li> <li>USS Constellation Square</li> <li>Box Office for USS Constellation</li> <li>World Trade Centre</li> </ul>	<ul style="list-style-type: none"> <li>Using historical artefacts as public art is very popular with children – sitting and playing and taking pictures</li> <li>Gathering and standing for ticketing</li> <li>Playing with Public Art object and taking pictures</li> <li>Sitting on the benches</li> <li>Watching performances</li> </ul>	<ul style="list-style-type: none"> <li>Projecting pier 1 provides important open spaces and catchment area</li> <li>The ticket office for USS Constellation makes gathering</li> <li>Playground for children</li> </ul>
	Foreground waterfront		<ul style="list-style-type: none"> <li>Two-story &amp; low-rise building Harbourplace Pratt Street Pavilion</li> <li>Outdoor Cafes and Restaurants</li> <li>Skywalk to the Gallery Shopping Centre and Renaissance Hotel</li> </ul>	<ul style="list-style-type: none"> <li>In and out from both sides of the Harbourplace</li> <li>Shopping and eating</li> <li>Sitting in outdoor cafés and restaurants</li> <li>Sitting on the staircase</li> <li>pedestrian walking in front of the Harbourplace</li> <li>Gathering, standing, and ticketing for entering the USS Constellation watching waterscape and USS Constellation</li> <li>Regular musical concert on the balcony</li> </ul>	<ul style="list-style-type: none"> <li>Generates huge entering and leaving</li> <li>Transparent material and facade</li> <li>Entrance both front and back</li> <li>Design for outdoor space for café and restaurant giving great sense of the waterfront, European style Architectural design</li> <li>Direct Skywalk connection gives flow from background waterfront area ( The Gallery)</li> </ul>
	Back ground waterfront		<ul style="list-style-type: none"> <li>Skywalk from Harbourplace to The Gallery</li> <li>Renaissance Hotel</li> <li>Office Building</li> <li>Parking lot</li> </ul>	<ul style="list-style-type: none"> <li>Walking along the skywalk</li> <li>Heavy traffic and skywalk to the Gallery mainly used for connecting foreground and background waterfront</li> </ul>	<ul style="list-style-type: none"> <li>The Gallery generates constant flow from Background to Foreground waterfront (Harbourplace)</li> <li>Downtown area office building workers are the main users of the waterfront during lunch time</li> </ul>
	Inland		<ul style="list-style-type: none"> <li>Downtown office block</li> </ul>		<ul style="list-style-type: none"> <li>Central business district</li> <li>Very busy from morning to evening</li> </ul>

Figure 6.67: Analysis of activity types, patterns, and levels of clustering along the Harbourplace Pratt Street section throughout the day



	Detail of typical activities	Transformation of Activities Pattern During the Day						Key Findings
		8:00 - 9:00	10:00 - 11:00	12:00 - 13:00	14:30 - 15:30	17:00 - 18:00	19:00 - 20:00	
Weekdays	Jogging along the waterfront promenade	■	□	○	○	□	■	<ul style="list-style-type: none"> <li>+ Public art using historical objects are magnet spots for children and taking pictures</li> <li>+ Sitting and eating activities with the waterscape. The outdoor cafés are full the whole day from 11am until 9pm</li> <li>+ After 6pm, local people from downtown and residential areas increase the flow of people</li> <li>+ Family groups are constant visitors throughout the day</li> <li>+ Paddling boats are particularly enjoyable for families and draw attention from people passing along the promenade</li> <li>+ Use of Historical objects as public art and museums attracts children</li> <li>+ The Harbourplace Pratt St. Pavilion, the USS Constellation and Paddling boats are continuously used after 10am during the weekend</li> <li>+ The gallery users are important visitors of the section through the skywalk and crossing</li> <li>+ Sitting and relaxing are very common on Pier 1 (USS Constellation Square)</li> </ul>
	Going for a walk	■	□	●	●	●	■	
	Entering and leaving the Harbourplace pavilion	○	■	■	■	■	■	
	Eating in outdoor cafés and restaurants	□	■	■	■	■	■	
	Family gatherings	○	■	■	■	■	■	
	Children playing with Public Art objects	○	□	■	■	■	■	
	Gathering and ticketing for USS Constellation Box	○	□	■	■	■	■	
	Sitting and relaxing along the water's edge	○	□	■	■	■	■	
	Street Performance & Harbourplace balcony concert	○	○	□	□	□	□	
	Gathering and waiting for rides boat	○	□	■	■	■	■	
	Paddling boat on the water surface	○	□	■	■	■	■	
	Passing in front of the Harbourplace	□	■	■	■	■	■	
Weekends	Jogging along the waterfront promenade	■	□	○	○	□	■	<ul style="list-style-type: none"> <li>++ The level of family gatherings increases</li> <li>++ Intensity of use – the Harbourplace, the USS Constellation, Paddling boat, and the Gallery increases compared to weekdays</li> <li>++ Eating and relaxing in outdoor cafés and on balconies are the dominant character during the whole day</li> <li>++ Outdoor balcony music concert (both Pavilions)</li> </ul>
	Going for a walk	■	□	●	●	●	■	
	Entering and leaving the Harbourplace pavilion	○	■	■	■	■	■	
	Eating in outdoor cafés and restaurants	○	■	■	■	■	■	
	Watching waterscape	○	■	■	■	■	■	
	Family gatherings	□	■	■	■	■	■	
	Children playing with Public Art objects	○	■	■	■	■	■	
	Gathering and ticketing for USS Constellation Box	○	■	■	■	■	■	
	Sitting and relaxing along the water's edge	○	■	■	■	■	■	
	Street Performance & Harbourplace balcony concerts	○	□	□	□	□	□	
	Gathering and waiting for rides boat	○	□	■	■	■	■	
	Paddling boats on the water surface	○	□	■	■	■	■	
Event days (Tall Ship gatherings + Independence day)	Jogging along the waterfront promenade	■	□	○	○	□	■	<ul style="list-style-type: none"> <li>+++ Addition of Pride of Baltimore II attracts people at Pier 1 Square</li> <li>+++ For Sailabration July 4<sup>th</sup>, most of the promenade is full of people for fireworks until 10pm</li> <li>+++ Fireworks start about 9pm. Until then, a lot of people keep gathering on the waterfront</li> </ul>
	Going for a walk	■	□	●	●	●	■	
	Entering and leaving the Harbourplace pavilion	●	■	■	■	■	■	
	Eating outdoor café and restaurants	○	■	■	■	■	■	
	Watching the waterscape	○	■	■	■	■	■	
	Family gatherings	□	■	■	■	■	■	
	Waiting & Entering the Tall Ships, Pride of Baltimore II	□	■	■	■	■	■	
	Children playing with Public Art objects	○	■	■	■	■	■	
	Gathering and ticketing for USS Constellation Box	○	■	■	■	■	■	
	Sitting and relaxing along the water's edge	○	■	■	■	■	■	
	Street Performance & Harbourplace balcony concert	○	□	□	□	□	□	
	Gathering and waiting for rides boat	○	■	■	■	■	■	
	Paddling boat on the water surface	○	■	■	■	■	■	
	Passing in front of the Harbourplace	□	■	■	■	■	■	
	■ waiting & watching fireworks for July 4 <sup>th</sup> Sailabration	■	■	■	■	■	■	

### 3) The Harbourplace Light Street Pavilion section

#### About the section

This section was characterised by four important buildings, which directly influenced success during the redevelopment process. A series of construction projects – the Baltimore Convention Centre in the inland realm in 1979, the 500 room Hyatt Regency Hotel in the background waterfront realm in 1981, and the Harbourplace Light Street Pavilion in the foreground waterfront realm in 1980 - played a significant role in transforming the local waterfront into a world waterfront space. In addition, Camden Yards (Sports Park), located at one end of the Convention Centre functions as an equally important activity generator. Thus, the section not only had the most influential built environment in the case study area, but was also well integrated from the water surface to the inland realm in terms of physical accessibility and flow of people (Figure 6.68).

**Figure 6.68:** The Harbourplace Light Street Pavilion section



#### Key built environment

Evidence of the historical evolution of the waterfront was shown in section 6.1. Harbourplace, the Hyatt Hotel, the Convention Centre and the PSINet Stadium at Camden Yard were key buildings that contributed to the renaissance of the waterfront. With the successful functions, high accessibility from the water to Camden Yard was a crucial factor in creating the current liveliness along this section. In addition, the skywalk network connecting the Charles Centre,

the Convention Centre and McKeldin Plaza to the waterfront enhanced the accessibility for pedestrians. Furthermore, the other skywalk, which connects the parking building to the Harbourplace, also improved the accessibility for car users.

### **Activity types, patterns, flow and levels of clustering**

Due to the four important buildings along this section, it became an important corridor for robust pedestrian flow and the area's main activity generator. Heavy and extremely constant pedestrian traffic were identified. As Figure 6.71 shows, the Harporplace Light Street Pavilion was the most important activity generator, mainly for outdoor eating, shopping and entertainment from early morning to late evening until 10pm. Due to the walking distance to the downtown, it had various users – tourists, local people and office workers – their levels were dependent on time. As a result, interestingly, the Harbourplace Light Street Pavilion's waterfront promenade sustained a critical mass from late morning to late evening without reference to weekday, weekend or event days. This phenomenon was strong when sports matches took place at Camden Yard, which generated a lot of potential users of the waterfront before and after matches.

As Figure 6.72 and Figure 6.73 show, the flow of people, eating, shopping and entertainment activities are extremely high and regular during the weekend and event days and 'high and regular' during weekdays. However, during event days between 30<sup>th</sup> June and 4<sup>th</sup> July (Fourth July Sailbration), the waterfront promenade located between the tall ships on the water surface realm and the Harbourplace Light Street Pavilion achieves the highest flow of people, with many waiting to board the tall ships – Mircea and Ciscne Branco. Because of the opening of the historic tall ships to the public, people's activity patterns on the promenade were transformed from morning to evening (Figure 6.69). During this five day event period, there was a dramatic change in activities in this section.

### **Key activity patterns in the five realms**

According to the observational analysis of this section, each of the five realms of the waterfront was actively used by people because of the four influential buildings. The water surface realm was used by boats, water taxis, and tall ships during event days. The waterfront promenade in the water's edge realm was the busiest pedestrian corridor. The flow and 'stationary groups' multiplied when tall ships anchored on the waterfront in the water surface realm. Above all, the Harbourplace Light Street Pavilion was highlighted because of its robust functions for eating, shopping and entertainment (Figure 6.70). The outdoor balcony of Harbourplace attracted many users to enjoy the waterscape while eating. The balcony was also

used for regular musical concerts during the daytime. The provision of outdoor cafes and restaurants improved the liveliness of this section.

**Figure 6.69:** The change of use patterns, levels and flow of the people by the installation of a tall ship (Mircea) during the event days.



**Figure 6.70:** Indoor and outdoor cafes and restaurants were key characteristics of the Harbourplace Light Street Pavilion



### Key findings

In short, the observational analysis of this section has clearly demonstrated that the success of Harbourplace was dominant in terms of attracting people through the concept of the 'festive marketplace'. The combination of eating, shopping and entertainment succeeded in drawing and sustaining visitors inside and outside the buildings. Again, the importance of the waterscape environment with historic tall ships during event days was obvious through the transformation of activity patterns, flow levels and the use patterns of the space around the tall ships.



Figure 6.72: The built environment and activity patterns in the five realms of the Harbourplace Light Street Pavilion section

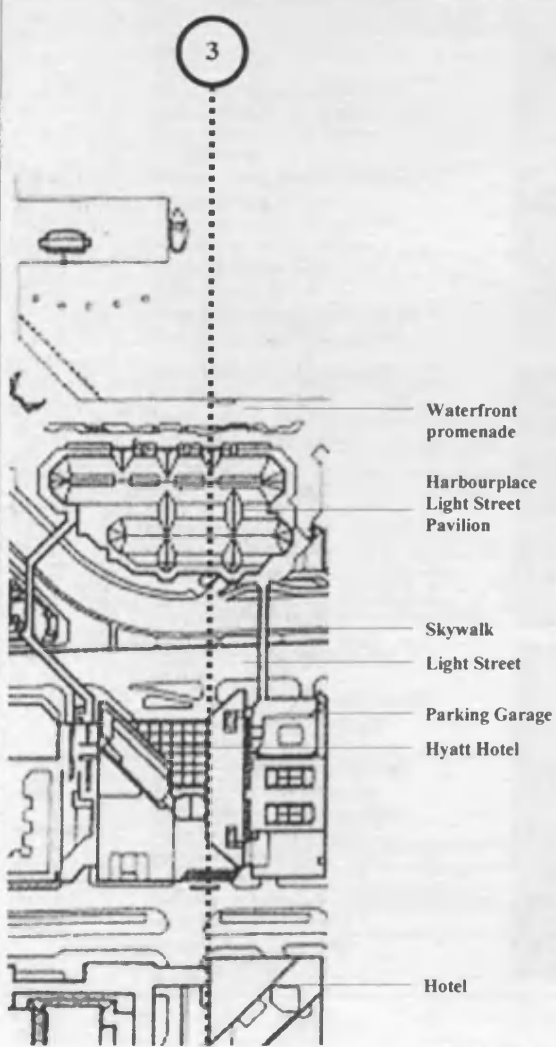


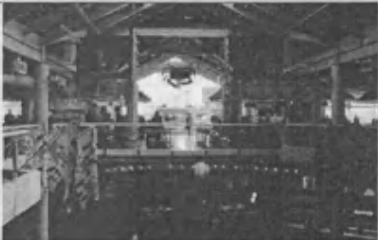


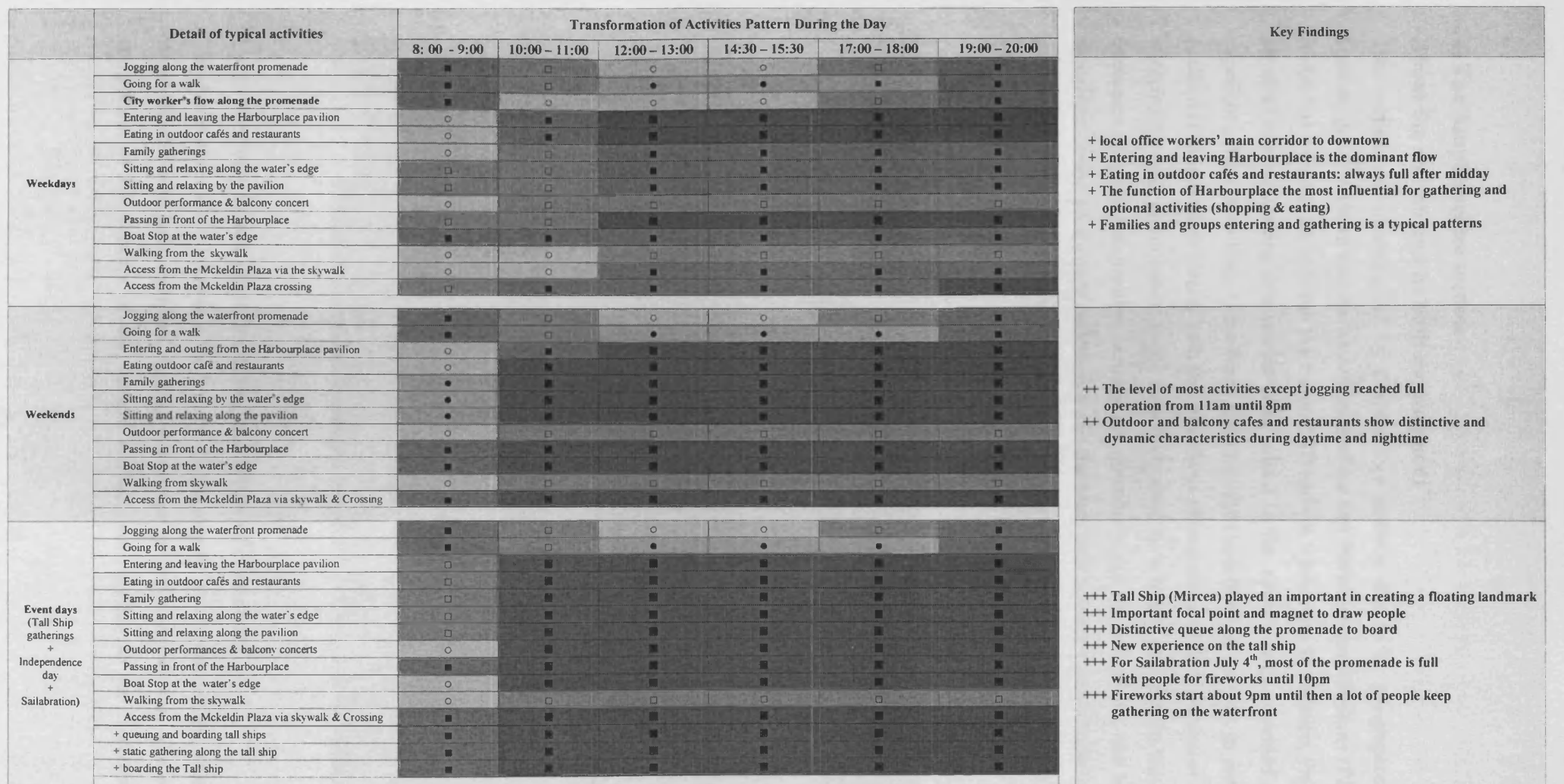
Observational section	Realms	Analysis of the built environment and activity patterns	
		Key Built Environment	Activity patterns
	Water Surface	 <ul style="list-style-type: none"> <li>Boat stop</li> <li>Tall Ship – Mircea (event day)</li> </ul>	<ul style="list-style-type: none"> <li>relaxing in a boat</li> <li>Queuing to board a tall ship (event day)</li> </ul>
	Water's edge	 <ul style="list-style-type: none"> <li>Waterfront promenade</li> <li>Street furniture</li> <li>Benches</li> </ul>	<ul style="list-style-type: none"> <li>Pedestrian walking</li> <li>Sitting along both water's edge and in front of the Pavilion</li> <li>Watching the waterscape and floating objects</li> </ul>
	Foreground waterfront	 <ul style="list-style-type: none"> <li>Outdoor cafés &amp; restaurant</li> <li>Harbourplace Light St. Pavilion</li> </ul>	<ul style="list-style-type: none"> <li>Entering and leaving the Pavilion</li> <li>Eating and sitting outdoor cafes and restaurants</li> <li>Eating and sitting on the balconies</li> <li>Watching the waterscape while eating food</li> </ul>
	Back ground Waterfront	 <ul style="list-style-type: none"> <li>Hyatt Hotel</li> <li>Parking building</li> <li>Office building</li> </ul>	<ul style="list-style-type: none"> <li>Walking along the skywalk</li> <li>Crossing from the Hyatt and downtown CBD</li> </ul>
	Inland	 <ul style="list-style-type: none"> <li>Baltimore Convention Centre</li> <li>Camden Yard</li> <li>PSINet Stadium</li> </ul>	<ul style="list-style-type: none"> <li>Baltimore Convention Centre</li> <li>Oriole Park at Camden Yard (baseball stadium)</li> <li>Important gathering generator after matches.</li> <li>Well-connected</li> <li>Strong pedestrian movement</li> </ul>

Figure 6.73: Analysis of activity types, patterns and levels of clustering along the Harbourplace Light Street Pavilion section throughout the day





#### **4) The Amphitheatre section**

##### **About the section and its built environment**

This section was characterised by a waterfront gateway due to its geographical location between the downtown and the waterfront, and the two Harbourplace Pavilions (Figure 6.74). It also has a direct link between the major CBD and the waterfront. In addition, the visual and physical openness along this section from inland to the water's edge provided a dramatic experience from downtown to the Inner Harbour when approaching on foot. In particular, the position of this section bisects both the waterfront promenade and the function of the overall waterfront's built environment in the case study area. As a result, this section has become an important geographical junction between the downtown and the waterfront, and between the Aquarium-bound promenade pedestrians and the Maryland Science Centre-bound promenade pedestrians. What is more, the Amphitheatre section becomes a focal point of the waterfront space.

**Figure 6.74:** An overview of the Amphitheatre section



##### **Users' activity types, patterns, flow, and levels of clustering**

The Amphitheatre section was a focal point of the overall waterfront. At the same time, the Amphitheatre was well-organised, having year-round programmed events. The place was a component of the concept of the 'festive marketplace' applied to the Harbourplace. 200

annual events, such as musical concerts, performances and entertainment take place every year. Thus, the Amphitheatre attracted a large number of visitors during performances (Figure 6.75). As a result, it became the most lively activity spot in the waterfront area. The water's edge realm in this section was the busiest, with water taxi and seaport taxi stops which operated from morning to evening, adding to the level of activity and pedestrian flow along the waterfront promenade.

**Figure 6.75:** The Amphitheatre section during the event day



Figure 6.77 demonstrates a series of different uses along the Amphitheatre section during weekdays, weekends and event days from morning to evening. The strongest and most active pedestrian flow and the largest number of visitors through the day was identified in this section compared to other sections. Various organised events and programmes were clearly key factors in the level of gathering and diversity of use patterns. Events took place regularly from noon to late evening. Evening events during weekdays, weekends and event days drew many different users, with local and downtown workers as the main audience. In fact, the Amphitheatre section became the socio-cultural arena for local people, tourists and visitors during weekends.

Users' activity patterns in the Amphitheatre section were dominated by watching events, which took place regularly during the day (Figure 6.78 and 6.79). Furthermore, tremendous pedestrian flow took place during the last day of the Independence Day event period (4<sup>th</sup> July Sailabration). The pedestrian flow was constant and heavy the whole day. The level of clustering grew stronger from morning, to lunch time, to afternoon and evening. Office

workers and local people played an important role in generating and sustaining strong and steady evening usage until 10pm. Moreover, the scale of events and the quality of the performances, mainly musical concerts influenced the level of activity in this section. On the final day of the event, the clustering reached its highest level, with total occupancy of the area for the Fourth of July Celebration event (Figure 6.76).

**Figure 6.76:** People waiting for fireworks during the Fourth of July celebration at the Amphitheatre



### **Users' activities in the five realms**

The five realms of the waterfront in this section were constantly used throughout the day without a break in the flow of people. In the water surface realm, water taxis and water buses operate from early morning to late afternoon carrying tourists and local people. At the same time, this realm has robust mobile floating objects creating a lively environment. The combination of waterfront promenade and the amphitheatre on the water's edge and foreground waterfront realms provides an important gateway to enter the waterfront. In addition, these realms are the place where city-wide organised events take place. Because of this, there is a constant flow of people, congregation, performance and events. It can be said that these two realms create the civic space for the Baltimore city (Figure 6.77). The background and inland realm is a CBD area, which consists mainly of office buildings. As a result, during the daytime on weekdays, it is quiet, but after office hours these realms generate a lot of people to have dinner at the Harbourplace and watch events taking place in the

Amphitheatre. Geographical proximity to the downtown with high accessibility played an important role in creating this robustness throughout the day.

In the morning, this section had rush hour activities as a walking route to the office buildings for local residential people. In the afternoon, the Amphitheatre was used by office workers along with tourists for lunch. With active use of the Amphitheatre for events, the water surface realm in this section had the most active water transportation from morning to evening for tourists and local people, connecting points of interest in the Inner Harbour area.

### **Key findings**

Two important conclusions can be drawn. This section clearly shows the importance of regular events and programmes to animate the waterfront space for cultural uses. At the same time, the spatial structures which physically and visually combine users, events and the waterscape are important. The provision of public open space that accommodates these events and programmes with high accessibility between downtown and the waterfront is a necessary feature of the urban waterfront design.

**Figure 6.77: Various faces of the Amphitheatre section during weekdays, weekends and event days**

	Weekdays	Weekends	Event days
8 - 9	 1 (8:29, Thursday, 24 June, 2004)	 7 (08:04, Sunday, 19 June, 2004 )	 13 (8:52, Thursday, 1 June, 2004)
10 - 11	 2 (10:13, Thursday 24 June, 2004)	 8 (10:12, Sunday, 19 June, 2004)	 14 (10:41, Thursday 1 July, 2004)
12 - 13	 3 (12:33, Thursday, 24 June, 2004)	 9 (12:05, Sunday, 19 June, 2004)	 15 (12:48, Sunday 4 July, 2004)
14 - 15	 4 (14:52, Thursday 24 June, 2004)	 10 (14:59, Sunday, 19 June, 2004)	 16 (16:20, Sunday 4 July, 2004)
17 - 18	 5 (17:59, Thursday 24 June, 2004)	 11 (17:04, Sunday, 19 June, 2004)	 17 (18:55, Sunday 4 July, 2004)
19 - 22	 6 (19:38, Wed. 23 June, 2004)	 12 (20:15, Sunday, 19 June, 2004)	 18 (21:25, Sunday, 4 July, 2004)

Source: All pictures in the table taken by the author (2004)



Figure 6.78: The built environment and activity patterns in the five realms of the Harbourplace Amphitheatre section






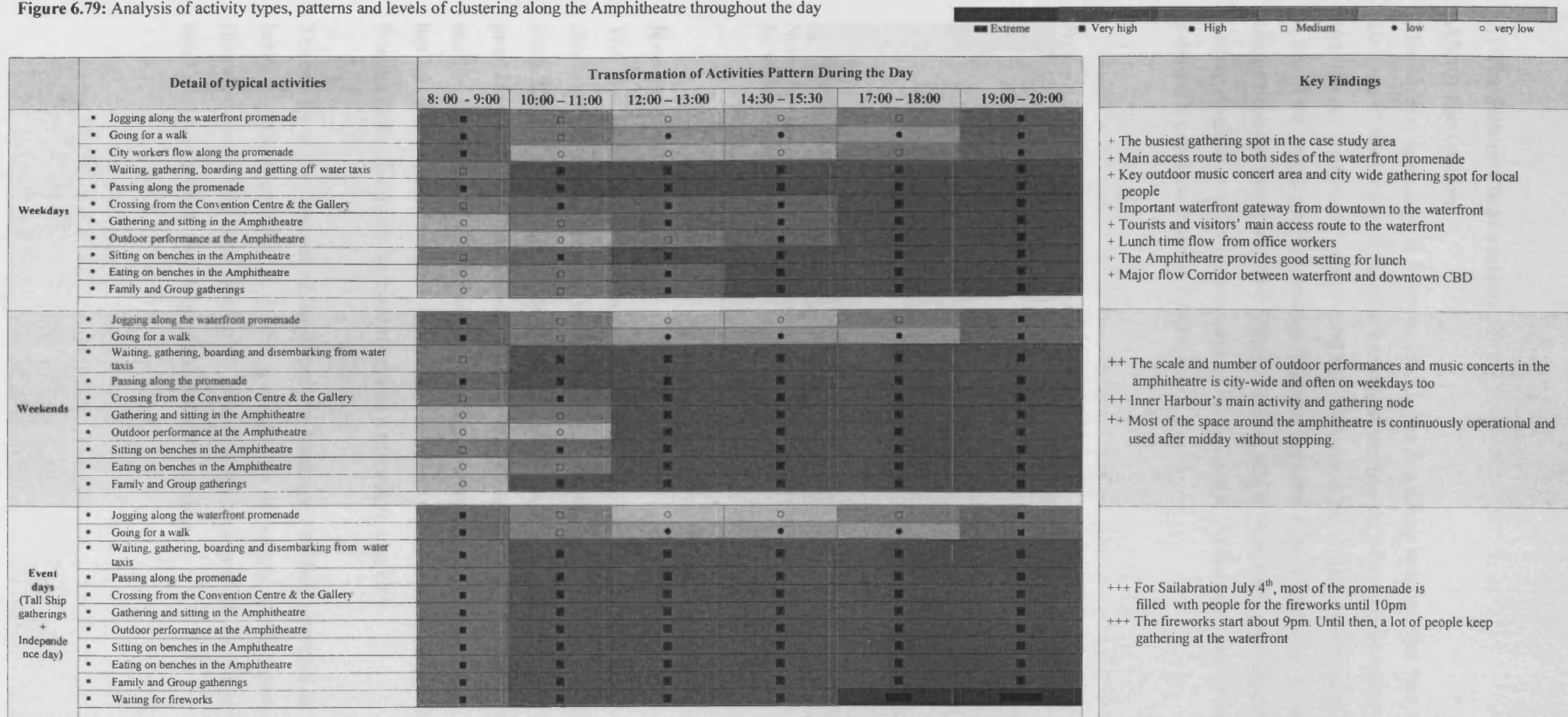
Observational section	Analysis of the built environment and activity patterns		
		Key Built Environment	Users and Activity
	Water Surface	 <ul style="list-style-type: none"> <li>Water taxi</li> <li>Seaport taxi</li> <li>USS Constellation</li> </ul>	<ul style="list-style-type: none"> <li>The busiest water transportation area</li> </ul>
	Water's edge	 <ul style="list-style-type: none"> <li>Waiting spot for boarding water taxi</li> <li>Waterfront promenade</li> <li>Amphitheatre</li> </ul>	<ul style="list-style-type: none"> <li>Temporary waiting and gathering for boarding and disembarking from water taxi</li> <li>The busiest pass zone along the promenade</li> <li>Huge gatherings when performances take place at Amphitheatre</li> <li>Sitting place for people throughout the day</li> <li>Passing from Pratt, Light St. Promenade and downtown area</li> <li>Family &amp; group gatherings</li> <li>Eating along amphitheatre and benches during lunch time</li> <li>Sand Architect Team performance</li> <li>The densest gathering place</li> <li>Officer workers' lunch time relaxing place</li> </ul>
	Foreground waterfront	 <ul style="list-style-type: none"> <li>Mckeldin Plaza</li> <li>Waterfall</li> <li>Skywalk to the Harbourplace Light St. Pavilion</li> </ul>	<ul style="list-style-type: none"> <li>Walking from the Convention Centre</li> <li>Crossing from the Gallery shopping centre</li> <li>Horse riding</li> </ul>
	Background waterfront	 <ul style="list-style-type: none"> <li>Legg Messon office tower</li> <li>Bank of America</li> <li>Baltimore Convention Center</li> </ul>	<ul style="list-style-type: none"> <li>Important corridor between CBD and waterfront</li> <li>Office workers gather and relax towards the waterfront</li> </ul>
	Inland	 <ul style="list-style-type: none"> <li>Downtown &amp; CBD</li> </ul>	

Figure 6.79: Analysis of activity types, patterns and levels of clustering along the Amphitheatre throughout the day





## 5) The Power Plant section

### About the section

This section is located in between Pier 3 (the Aquarium section) and Pier 5. It houses Pier 4. Because of the jutting of the pier into the water, like the other neighbouring piers it has a three sided water's edge and narrow land but it creates a canal-like waterfront environment (Figure 6.80). Two connecting pedestrian bridges between Pier 3 and Pier 4, and one pedestrian bridge between Pier 4 and Pier 5 have become major waterfront promenades and an important pedestrian flow corridor for journeys to Piers 5 and 6. At the same time, these bridges provide a dramatic experience of the waterscape.

**Figure 6.80:** Overview of the Power Plant section



**Note:** The above image is combined with two different pictures that the author took. Thus, the area in the background may be distorted.

### Key built environment

The key buildings in this section consist of the historic Power Plant with its symbolic chimneys - currently housing the ESPN zone, the Barnes & Nobles bookshop and the Hard Rock Café – an office building and the Aquarium Mammal Pavilion. The Power Plant provides a strong but harmonious contrast with the neighbouring modern style office building and the Aquarium Mammal Pavilion. The historic façade and tall chimneys of the Power Plant has become a visual landmark to attract pedestrians to this section (Figure 6.81). Outdoor and floating cafés alongside the building create a vibrant atmosphere.

The square at the entrance of the Aquarium Mammal Pavilion provides an important corridor between Pier 4 and Pier 5. It also provides an important public space and buffer zone. However, there was little interaction between the background the waterfront and the pier. Most of the pedestrian flow took place in the Pier 4 area.

**Figure 6.81:** Adaptive reuse of the historic Power Plant and its historic façade provides a great sense of the historic waterfront.



### **Users' activity types, patterns, flow, and levels of clustering**

Usage and activity patterns in this section were characterised by four dominant activity nodes – in front of the Barnes & Noble bookshop in the Power Plant, the Aquarium Mammal Pavilion, Hard Rock café and floating café deck, and the waterfront promenade bridge (Figure 6.82). Substantial pedestrian flow and activities took place in these areas. Each four activity nodes has different characteristics in their activity patterns depending on time. During the daytime, the Aquarium Mammal Pavilion and the open space at its entrance played an important role in generating constant congregation and activity compared to the other buildings but it became very quiet after working hours. The ESPN and the Hard Rock cafes in the Power Plant, however, were very busy in the late afternoon and evening. The eating, drinking and musical performances e.g. as in the two Harbourplace Pavilions continued until late evening. The floating deck cafe was highlighted as an important focal point in the night for local users and tourists.

Figure 6.85 demonstrates users' activity patterns in this section throughout the weekday, weekend and event days. During the weekday and weekend, although there were some differences in the level of flow and congregation, this section had a constant and heavy flow of people, especially across the waterfront promenade bridge. Outdoor eating and drinking were the most dominant activities throughout the whole day, with shopping and entertainment activity taking place inside the Power Plant.

**Figure 6.82:** Pedestrian flow along the waterfront promenade bridge and other activity nodes



However, in the case of the event days, use patterns in this section dramatically changed. The end of Pier 4 is not used very much, even at weekends. After the installation of the Tall Ships at the end of Pier 4, activity patterns were transformed dramatically, creating a prominent activity node and gathering place to board and experience the inside of the Tall Ships (Figure 6.83). In addition, the unused end of Pier 4 became a temporary banquet place for watching fireworks at the end of the event day. Many people queued to enter the temporary site created to watch the fireworks in the late evening (Figure 6.84).

**Figure 6.83:** Transformation of the use patterns after the installation of the Tall Ships (Cuahtémoc from the Mexican Navy) during the event day.

Before Tall Ship- parking space



After - activity node



**Figure 6.84:** Unused space at the end of Pier 4 becomes a banqueting place. People are waiting to book a place to watch the fireworks during dinner




### **Users' activity patterns in the five realms**

Interestingly, the water's edge and foreground waterfront realm of this section comprises a pier (Pier 4) which is surrounded by the water surface realm on three sides. As a result, most activities and the flow of people take place on the pier, whereas on the background waterfront realm there are few activities and a reduced flow of people. The rest of the section, which consists of parking lots and buildings, was not integrated with the pier in terms of function and accessibility. Despite the inactivity and isolation of part of the section, the pier still had robust activity with eating, drinking and entertainment throughout the day and into the evening. Most evening drinking activities were related to the Hard Rock Café in the Power Plant. As mentioned above, during event days the whole pier was crowded with tourists, visitors and local people. In addition, many boats anchored along the water's edge, giving a sense of excitement. Above all, the installation of the Tall Ship, Cuauhtémoc, from Mexico at the end of the pier transformed use patterns and created an important activity node and focal point.

### **Key findings**

The key findings of this section can be summarised in three respects. First, the importance of the historic building and its modern use was identified as creating a lively cultural environment in terms of its visual attraction and generation of activity. The symbolic image of the historic building also played an important role in creating an image of the historic waterfront, although many parts of the waterfront's built environment were demolished in the early stages of redevelopment in the 1960s. Second, observational analysis shows that the elongated water's edge, formed by the projecting pier structure, provides users with more opportunities to enjoy the waterscape and creates spaces to accommodate potential water-related facilities and activities. Finally, this section clearly shows how the underused spaces were revitalised by events, the installation of Tall Ships at the end of Pier 4, which was usually used for car parking.

**Figure 6.85:** Various faces of the Power Plant section during weekdays, weekends and event days

	Weekdays	Weekends	Event days
8 - 9	 1 (09:04, Friday, 25 <sup>th</sup> June 2004)	 7 (9:24 Sunday, 20 <sup>th</sup> June 2004)	 13 (09:03, Friday, 2 <sup>nd</sup> July 2004)
10 - 11	 2 (10:41, Friday, 25 <sup>th</sup> June 2004)	 8 (10:46, Sunday, 20 <sup>th</sup> June 2004)	 14 (11:03, Friday, 2 <sup>nd</sup> July 2004)
12 - 13	 3 (12:25, Friday, 25 <sup>th</sup> June 2004)	 9 (10:46, Sunday, 20 <sup>th</sup> June 2004)	 15 (13:22, Friday, 2 <sup>nd</sup> July 2004)
14 - 15	 4 (14:41, Friday, 25 <sup>th</sup> June 2004)	 10 (14:24, Sunday, 20 <sup>th</sup> June 2004)	 16 (14:48, Friday, 2 <sup>nd</sup> July 2004)
17 - 18	 5 (15:12, Friday, 25 <sup>th</sup> June 2004)	 11 (15:04, Sunday, 27 <sup>th</sup> June 2004)	 17 (17:59, Sunday, 4 <sup>th</sup> July 2004)
19 - 22	 6 (18:30 Friday, 25 <sup>th</sup> June 2004)	 12 (17:36, Sunday, 20 <sup>th</sup> June 2004)	 18 (18:44, Sunday 4 <sup>th</sup> July 2004)

Source: All pictures in the table taken by the author (2004)



Figure 6.86: The built environment and activity patterns in the five realms of the Power Plant section

Observational section		Analysis of the built environment and activity patterns		
			Built Environment	Users' activity patterns
	The Aquarium Mammal Pavilion	Water Surface	<ul style="list-style-type: none"> <li>Private boats</li> <li>Hard Rock outdoor floating deck</li> <li>ESPN outdoor floating deck</li> <li>Two Pedestrian Bridges from Piers 3 to 4</li> <li>Skywalk Bridge from Aquarium to Mammal Pavilion</li> </ul>	<ul style="list-style-type: none"> <li>Boats stopping along the water's edge</li> <li>Sitting and eating on the floating decks</li> <li>Outdoor music performance</li> <li>Crossing two pedestrian bridges</li> </ul>
	The Aquarium Mammal Pavilion	Water's edge	<ul style="list-style-type: none"> <li>Waterfront Promenade</li> <li>Outdoor cafés and Restaurants</li> <li>Temporary Firework vantage point</li> </ul>	<ul style="list-style-type: none"> <li>Walking &amp; Sitting</li> <li>Eating at outdoor cafes and floating decks</li> <li>Queuing &amp; Entering for reserved firework vantage points</li> </ul>
	Pedestrian bridge	Foreground waterfront	<ul style="list-style-type: none"> <li>Barnes &amp; Noble bookshop in Power Plant</li> <li>ESPN Zone in Power Plant</li> <li>Hard Rock Café in Power Plant</li> <li>Cafés and Restaurant</li> <li>Office building</li> <li>Mammal Pavilion</li> </ul>	<ul style="list-style-type: none"> <li>Gathering and entering is dominant in front of the Power Plant entrance</li> <li>Sitting on the steps</li> <li>Sitting &amp; eating in the outdoor cafés, restaurants and balcony</li> <li>Major gatherings at Mammal Pavilion square</li> <li>Mammal Pavilion is a key gateway between Pier 4 and Piers 5 &amp; 6</li> </ul>
	Mammal Pavilion Square			
	Office building			
	Pedestrian bridge	Background waterfront	<ul style="list-style-type: none"> <li>Office building under construction</li> <li>Parking building and parking lot</li> </ul>	<ul style="list-style-type: none"> <li>Walking from Skywalk and Crossing</li> <li>Group and family walking along Pratt Street</li> </ul>
	Power Plant			
	Pratt Street	Inland	<ul style="list-style-type: none"> <li>War Memorial Museum</li> <li>Office building</li> <li>Baltimore Community College</li> <li>Port Discovery</li> <li>City Hall</li> </ul>	
	Mammal Place			
	Community College			
	Port Discovery			

Figure 6.87: Analysis of activity types, patterns and level of clustering along the Power Plant section throughout the day



	Detail of typical activities	Transformation of Activities Pattern During the Day						Key Findings
		8:00 - 9:00	10:00 - 11:00	12:00 - 13:00	14:30 - 15:30	17:00 - 18:00	19:00 - 20:00	
Weekdays	▪ Jogging along the waterfront promenade	■	□	○	○	□	■	+ Modern use of Historical Power Plant and mammal Pavilion are major attractions and gathering spots + Two Pedestrian bridges accommodate most of the critical mass from both sides + Sitting and eating at outdoor cafes and restaurants is a distinctive activity + Musical performances and eating on the floating deck is identified as a focal point at the Power Plant and Mammal Pavilion + Family gatherings and eating activities + Walking along the promenade for the next journey + The historical façade of the Power Plant attracts people
	▪ Going for a walk	■	□	●	●	●	■	
	▪ Sitting on the floating deck	○	○	□	■	■	■	
	▪ Outdoor music performance	○	○	○	○	○	○	
	▪ Walking along the water's edge	○	□	■	■	■	■	
	▪ Crossing pedestrian bridges	●	■	■	■	■	■	
	▪ Gathering & entering the Power Plant	○	□	■	■	■	■	
	▪ Sitting and eating in outdoor cafes & Restaurants	○	●	■	■	■	■	
	▪ Entering and leaving the Mammal Pavilion	○	■	■	■	■	■	
	▪ Walking from Pratt St. Crossing	○	■	■	■	■	■	
	▪ Family and group gatherings	○	□	■	■	■	■	
Weekends	▪ Jogging along the waterfront promenade	■	□	○	○	□	■	++ The number of people crossing the pedestrian bridges dramatically increases ++ Most of the pedestrian bridge and the promenade are fully occupied and used by the flow of the people
	▪ Going for a walk	■	□	●	●	●	■	
	▪ Sitting on the floating deck	○	○	■	■	■	■	
	▪ Outdoor music performance	○	○	○	□	□	□	
	▪ Walking along the water's edge	□	■	■	■	■	■	
	▪ Crossing pedestrian bridges	□	■	■	■	■	■	
	▪ Gathering & entering the Power Plant	●	■	■	■	■	■	
	▪ Sitting and eating in outdoor cafes & Restaurants	○	■	■	■	■	■	
	▪ Entering and leaving the Mammal Pavilion	○	■	■	■	■	■	
	▪ Walking from Pratt St. Crossing	○	■	■	■	■	■	
	▪ Family and group gatherings	●	■	■	■	■	■	
Event days (Tall Ship gathering + Independence day)	▪ Jogging along the waterfront promenade	■	□	○	○	□	■	+++ Tall Ship addition to the end of Pier 4 +++ During event days, most of the promenade is full with people for the fireworks until 10pm +++ The fireworks start about 9pm. Until then, a lot of people keep gathering on the waterfront
	▪ Going for a walk	■	□	●	●	●	■	
	▪ Sitting on the floating deck	○	○	■	■	■	■	
	▪ Outdoor music performances	○	○	○	□	□	□	
	▪ Walking along the water's edge	○	■	■	■	■	■	
	▪ Crossing pedestrian bridges	○	■	■	■	■	■	
	▪ Gathering & entering the Power Plant	○	■	■	■	■	■	
	▪ Sitting and eating in outdoor cafes & Restaurants	○	■	■	■	■	■	
	▪ Entering and leaving Mammal Pavilion	○	■	■	■	■	■	
	▪ Walking from Pratt St. Crossing	○	■	■	■	■	■	
	▪ Family and group gatherings	□	■	■	■	■	■	
	+++ Queuing and entering the fireworks vantage point	○	○	○	○	■	■	
	+++ watching the fireworks	○	○	○	○	■	■	



## 6) The Pier 5 and Pier 6 section<sup>17</sup>

### About the sections

The physical structure of this section is characterised by the adjacency of two piers – Pier 5 and Pier 6, creating a unique and long geographical water's edge (Figure 6.88). The connecting area, at the heart of the two piers, was used for a direct traffic access road from inland to the water's edge and for open parking lots for the Pier 6 Hotel and Pier 6 Concert Pavilion. An open parking lot was located in the foreground waterfront and water's edge realm. In addition, this section also has a newly constructed parking garage (2004) in the foreground waterfront realm behind the Columbus Centre. Like the two Harbourplace Pavilions, Amphitheatre and the Visitor Information Centre section, it also had a strong functional and physical integration, directly connecting to the continuous waterfront promenade leading to Port Discovery - a downtown leisure, restaurant and museum district – located in the inland realm.

**Figure 6.88:** Overview of the Pier 5 and Pier 6 sections.



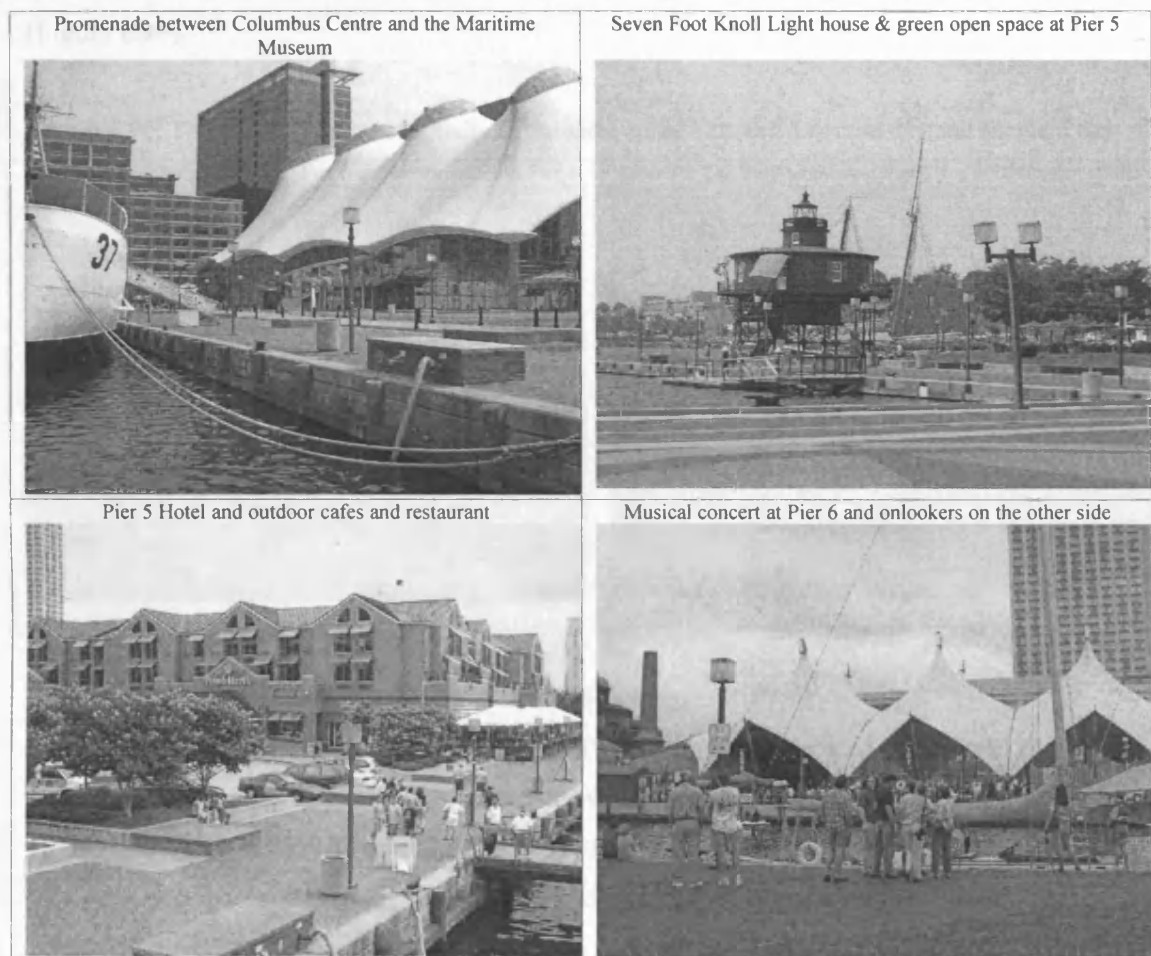
### The built environment

This section has various types of buildings, from cultural grade I to VI in the foreground waterfront and water's edge realm – Columbus Centre (CG VI), Coast Guard Taney and Seven Foot Knoll Lighthouse (CG I), Pier 5 Hotel (CG IV), Restaurant (CG III), Pier 6 Concert Hall (CG I), and ships used for educational purposes (CG II). Along the elongated water's edge of Pier 5 and Pier 6, a place for boat stops and cruise service is provided.

<sup>17</sup> Pier 5 and Pier 6 are independent sections but observational analysis was conducted at the same time. Although these two sections cover large areas, there were very low activities and pedestrian flow except for the Pier 5 Hotel and Coast Guard Taney areas.

In particular, at the end of Pier 5, historic ships – the Lady Maryland, the Meldred Belle and the Sigebee – are operated to provide a real experience of the ships' past function for students. The Seven Foot Knoll Light House and a rare example of a real WWII ship, the Coast Guard Tandy, played an important role in creating visual interest in this section, which was otherwise dominated by car parking, the flow of traffic and few activities, despite the existence of various cultural facilities. In addition, the white tensile roof structure of Columbus Centre and the Pier 6 Concert Hall enhanced the visual prominence of the area.

**Figure 6.89: Key buildings in this section**



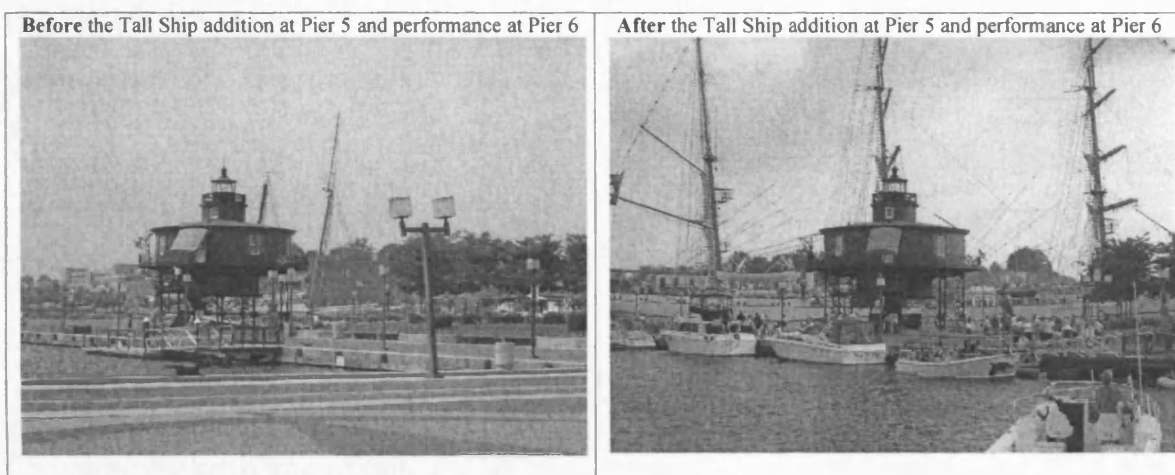
### **Users' activity types, patterns, flow and the level of clustering**

Figure 6.92 and Figure 6.93 illustrate key activity patterns and the transformation of the usage patterns throughout the day. In spite of the diverse cultural facilities and spacious foreground waterfront and water's edge realm, the use patterns in this section were dominated by open parking spaces and parking garages serving the Pier 6 Hotel in the heart of the section. As a result, during weekdays and weekends this section did not have a strong pedestrian flow or activities compared to other sections in the case study area. There was constant traffic flow, car parking and vehicle stopping in front of the Pier 5 Hotel, but the hotel and outdoor

restaurant and cafes played an important role in generating the flow of people from early morning to evening.

When performances took place at the Pier 6 Concert Pavilion, the section generated activity. In addition, the performances attracted many onlookers from the other side of the waterfront promenade. The section has a strong contrast in its activity patterns, depending on whether performances are being held in the Pier 6 Concert Hall. In the case of event days, the installation of the Tall Ship, the Sagres, at the end of Pier 5, transformed the relatively low level of activity and pedestrian flow to a much higher level, especially at activity nodes (Figure 6.90).

**Figure 6.90:** The transformation of activity in the same space between a normal day and an event day



### **Users' activity patterns in the five realms**



















Users' activities and congregation mainly took place in the water's edge realm at the end of Pier 5 and the place where historic artefacts were installed such as the Seven Knoll Light House, Coast Guard Taney and the Tall Ship, the Sagres (during an event day). The arrival and departure of cars in front of the Pier 5 Hotel in the foreground waterfront realm was dominant, bisecting the section into a northern and southern part. The background waterfront realm had no functional integration with the flow of people throughout the day.

### **Key findings**

The observational survey found that the section has great potential to augment the cultural use of the waterfront in terms of its spacious 'foreground waterfront realm' and 'waterfront promenade in the water's edge realm' allowing it to host cultural facilities and open spaces. However, most of the foreground waterfront realm was used for parking spaces for the Pier 5 Hotel, the Pier 6 Concert Hall and the Columbus Centre office buildings. The design of the

area generally discourages pedestrian congregation or flow, although there was active use at the end of Pier 5, where restaurants and a part of the maritime museum were located. In addition, Pier 6 Pavilion's occasional programmes did not maximise the potential of the waterfront of Pier 6. Furthermore, because of the location of the Concert Hall at the end of the pier, public access to Pier 6's waterfront edge was not permitted. It seems that this section did not maximise the potential of the waterfront. However, this section experienced a dramatic change in spatial use patterns during event days and performances at the Pier 6 Concert Pavilion. This drew attention to the fact that events and programmes create a lively waterfront environment.

**Figure 6.91: Various faces of the Pier 5 and Pier 6 sections during weekdays, weekends and event days**

	Weekdays	Weekends	Event days
8 - 9	 1 (10:12, Tuesday, 22 <sup>nd</sup> June 2004)	 7 (10:20, Sunday, 27 <sup>th</sup> June 2004)	 13 (09:06, Friday, 2 <sup>nd</sup> July 2004)
10 - 11	 2 (10:12, Tuesday, 22 <sup>nd</sup> June 2004)	 8 (10:50, Sunday, 20 <sup>th</sup> June 2004)	 14 (11:06, Friday, 2 <sup>nd</sup> June 2004)
12 - 13	 3 (12:23, Tuesday, 22 <sup>nd</sup> June 2004)	 9 (12:37, Sunday, 20 <sup>th</sup> June 2004)	 15 (14:03, Wednesday, 30 <sup>th</sup> June 2004)
14 - 15	 4 (14:33, Wednesday, 14 <sup>th</sup> July 2004)	 10 (15:06, Sunday, 27 <sup>th</sup> June 2004)	 16 (13:54, Wednesday, 30 <sup>th</sup> June 2004)
17 - 18	 5 (18:07, Tuesday, 22 <sup>nd</sup> June 2004)	 11 (15:11, Sunday, 20 <sup>th</sup> June 2004)	 17 (18:11, Sunday, 4 <sup>th</sup> July 2004)
19 - 22	 6 (19:04, Tuesday, 22 <sup>nd</sup> June 2004)	 12 (15:09, Sunday, 27 <sup>th</sup> July 2004)	 18 (18:39, Sunday, 4 <sup>th</sup> July 2004)

Source: All pictures in the table taken by the author (2004)

**Figure 6.92:** The built environment and activity patterns in the five realms of the Pier 5 and Pier 6 sections

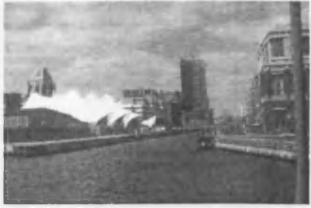









Analysis of the built environment and activity patterns							
Users' activity patterns	Built Environment		Observation area			Built Environment	Users' activity pattern
<ul style="list-style-type: none"> <li>none</li> </ul>	<ul style="list-style-type: none"> <li>none</li> </ul>		Water surface Pier 6 Concert Pavilion Tall Ship (during event days) Seven Foot Knoll Lighthouse Open space	Water surface		<ul style="list-style-type: none"> <li>Lady Maryland, Mildred Belle, Sigsbee (Living Classrooms Foundation)</li> <li>Boat stop</li> <li>Water taxi stop</li> <li>Duchess of Puntail Cruise next to Pier 5 Hotel</li> <li>Sagres Tall Ship (Event day)</li> </ul>	<ul style="list-style-type: none"> <li>Gathering for boarding Living Classrooms Ship</li> <li>Children's boarding is dominant</li> <li>Queuing and entering Tall Ship (during event day)</li> </ul>
<ul style="list-style-type: none"> <li>No flow of people because of permitted access</li> </ul>	<ul style="list-style-type: none"> <li>Pier 6 Concert Pavilion</li> <li>Parking lot</li> </ul>		Water's edge Pier 6 Concert Pavilion Parking lot Roundabout Columbus Plaza Columbus Centre Coast Guard Taney Pratt Street	Water's edge		<ul style="list-style-type: none"> <li>Seven Foot Knoll Light House</li> <li>Promenade</li> <li>Green open spaces</li> <li>Coast Guard Taney</li> </ul>	<ul style="list-style-type: none"> <li>Pedestrian bridge Entering Seven foot Knoll maritime museum</li> <li>Going for a walk</li> <li>Sitting on the green park and relaxing. Crossing the pedestrian bridge</li> <li>Sitting along the water's edge when a Pier 6 Concert take place</li> </ul>
<ul style="list-style-type: none"> <li>Car Parking</li> <li>Irregular gathering</li> <li>Car approaching</li> </ul>	<ul style="list-style-type: none"> <li>Parking lot</li> <li>Parking buildings</li> </ul>		Foreground waterfront Parking lot Roundabout Columbus Plaza Columbus Centre Coast Guard Taney Pratt Street	Foreground waterfront		<ul style="list-style-type: none"> <li>Pier 5 Hotel</li> <li>Restaurant</li> <li>Roundabout in front of the Pier 5 Hotel</li> <li>Coast Guard Taney</li> <li>Columbus Centre</li> <li>Columbus Centre open space</li> <li>Parking lot and building</li> </ul>	<ul style="list-style-type: none"> <li>Sitting and eating at outdoor cafes and restaurants</li> <li>Car parking and dropping people</li> <li>Entering the hotel</li> <li>Entering a Columbus Centre</li> <li>Crossing pedestrian bridge</li> <li>Gathering for entering Coast Guard Taney</li> <li>Groups and children gathering</li> <li>Passing</li> </ul>
<ul style="list-style-type: none"> <li>Crossing Pratt St.</li> </ul>	<ul style="list-style-type: none"> <li>Office building</li> </ul>		Background waterfront Columbus Plaza Columbus Centre Coast Guard Taney Pratt Street	Background waterfront		<ul style="list-style-type: none"> <li>Market Place Building</li> <li>Parking Building</li> <li>Office building under construction</li> </ul>	<ul style="list-style-type: none"> <li>Crossing Pratt Street</li> </ul>
<ul style="list-style-type: none"> <li>No activities</li> </ul>	<ul style="list-style-type: none"> <li>Port Discovery</li> <li>Office buildings</li> </ul>		Inland Office building Port Discovery	Inland		<ul style="list-style-type: none"> <li>Port Discovery (Kid-Powered Museum)</li> <li>Restaurant and Cafes</li> <li>Baltimore Community College</li> </ul>	<ul style="list-style-type: none"> <li>No activities</li> </ul>



Figure 6.93: Analysis of activity types, patterns and level of clustering along the Pier 5 and Pier 6 sections throughout the day



	Detail of typical activities	Transformation of Activities Pattern During the Day						Key Findings
		8: 00 - 9:00	10:00 - 11:00	12:00 - 13:00	14:30 - 15:30	17:00 - 18:00	19:00 - 20:00	
Weekday	Jogging along the waterfront promenade	■	□	○	○	□	■	+ The hotel is an important flow of people generator through the day + In particular, it provides a constant flow even in early morning (8-9am) + Hotel customers generate not only static gatherings around the building but also a constant flow of people along the waterfront + Car accessibility is a critical element + Parking and dropping people off is a distinctive pattern during the whole day + Entering and leaving the hotel is constant during the whole day + Hotel and Cruise passengers seem to have a strong relationship
	Going for a walk	■	□	●	●	●	■	
	Gatherings to board ships(Living Classrooms)	□	□	□	□	□	□	
	Entering the Seven Foot Knoll Maritime Museum	●	□	■	■	■	□	
	Sitting on benches and in green park	□	□	□	■	■	■	
	Eating at outdoor cafes and restaurants	□	■	■	■	■	■	
	Entering and leaving hotels	■	■	■	■	■	■	
	Car parking and dropping people at the hotel	■	■	■	■	■	■	
	Gathering for Coast Guard Taney	○	□	■	■	■	■	
	Entering and leaving Columbus Centre	■	□	■	■	■	□	
	Crossing the pedestrian bridge	■	■	■	■	■	■	
	Crossing Pratt St	○	○	□	□	□	□	
Weekend	Jogging along the waterfront promenade	■	□	○	○	□	■	++ During music concerts taking place at Pier 6, onlookers gathered both at Pier 5 and in the Harriet Hotel promenade ++ Temporary outdoor cafes and restaurants along the Harriet Hotel promenade create lively environment ++ Private boat anchoring and gathering along piers 5 and 6 ++ Relaxing on the boat is dominant during the day ++ Coaches and car parking is widely identified during the concert
	Going for a walk	■	□	●	●	●	■	
	Boarding ship (Living Classrooms Foundation)	□	□	□	□	□	□	
	Entering the Seven Foot Knoll Maritime Museum	●	□	■	■	■	■	
	Sitting on benches and in green park	□	■	■	■	■	■	
	Eating at outdoor cafes and restaurants	□	■	■	■	■	■	
	Entering and leaving hotels	■	■	■	■	■	■	
	Car Parking and Dropping people	■	■	■	■	■	■	
	Gathering for Coast Guard Taney	○	■	■	■	■	■	
	Entering and leaving Columbus Centre	○	○	○	○	○	○	
	Crossing the pedestrian bridge	■	■	■	■	■	■	
	Crossing Pratt St	○	□	□	□	□	□	
Event day (Tall Ship gathering + Independence day)	Jogging along the waterfront promenade	■	□	○	○	□	■	+++ Tall ship influence on the use of pier 5 – a lot of gathering and boarding the tall ships +++ The water's edge was fully used by sitting watching the fireworks +++ boats also lined up along the water's edge for watching the fireworks +++ Pier 6 Outdoor concert also influenced the usage pattern of the promenade – for a long period, stationery activity took place along the water's edge
	Going for a walk	■	□	●	●	●	■	
	Boarding on ship(Living Classrooms)	□	□	□	□	□	□	
	Entering the Seven Foot Knoll Maritime Museum	●	■	■	■	■	■	
	Sitting on benches and in green park	●	■	■	■	■	■	
	Eating at outdoor cafes and restaurants	■	■	■	■	■	■	
	Entering and leaving hotels	■	■	■	■	■	■	
	Car parking and dropping people	■	■	■	■	■	■	
	Gathering for Coast Guard Taney	■	■	■	■	■	■	
	Entering and leaving Columbus Centre	○	○	○	○	○	○	
	Crossing the pedestrian bridge	■	■	■	■	■	■	
	Crossing Pratt St	●	■	■	■	■	■	
	+++ queuing and entering the Tall Ship – Sagres and Cuouhtemoc	■	■	■	■	■	■	
	+++ watching the fireworks and gathering	○	○	○	■	■	■	



## **7) The Public Works Museum section**

### **About the section and the built environment**

The section is characterised by two high-rise buildings – the Scarlett Place residential building, and the Harriot Hotel – and the historic Public Works Museum between them, along the waterfront promenade (Figure 6.94). A large sized Marina is situated at the water's edge in the water surface realm. In the inland realms, there were mainly commercial and residential blocks in the area known as Little Italy.

**Figure 6.94:** Overview of the Scarlett Place and the Public Works Museum section



### **Users' activity types, patterns, flow and level of clustering**

The waterfront promenade in this section is the quietest place compared to other sections in the case study area, except in front of the Harriot Hotel and Public Works Museum. Thus, the flow of users was very low during weekdays and even weekends. However, the entrance to the hotel and marina had erratic flows of people, both sitting and walking. The water taxi stops near the marina and was active for hotel users. Despite the reduced activity and pedestrian flow, the historic Public Works Museum attracted regular activity and congregations of children and became a major attraction in the section. Because of the contrast between the historic and modern buildings along the waterfront, there is a rich and diverse physical environment providing visual enjoyment of the areas. However, like the Pier 5 and Pier 6 sections, this section was robustly used by local people from Little Italy and hotel users during event days. The level of activity and congregation were influenced by performances at the Pier 6 Concert Pavilion and the fireworks displays at the waterfront.

### **Users' activity patterns in the five realms**

There was a low pedestrian flow and activities that took place in the overall five realms of the waterfront (Figure 6.97 & Figure 6.98). Early morning jogging and walking by hotel users

were identified, but pedestrian flow was very low along the waterfront promenade. The historic Public Works Museum was the main attraction point for tourists and children. However, the water taxi service in the water surface realm had the most active operation as transportation for hotel users. Although this section had a low flow of people, the waterfront promenade became robust during performances at the Pier 6 Concert Hall and for firework displays on event days (Figure 6.95).













**Figure 6.95:** Transformation of the Public Works Museum section between a normal day and an event day



### Key findings

In spite of the low profile activities along this section, the observational analysis demonstrated the importance of outdoor events, which took place at Pier 6 Open Concert Hall, in drawing people and animating the waterfront space. In addition, the provision of ample space for the waterfront promenade, which was less used during weekdays and even weekends, created an activity node and congregations for special events. It shows that the vitality of a place can be created through intangible programmes and events with a spatial structure that accommodates them.

**Figure 6.96:** Various faces of Scarlett Place and Public Works Museum section during weekdays, weekends and event days

	Weekdays	Weekends	Event days
8 - 11	 1 (10:49, Tuesday, 22 <sup>nd</sup> June 2004)	 6 (10:15, Sunday, 20 <sup>th</sup> June 2004)	 11 (10:12, Sunday, 4 <sup>th</sup> July 2004)
12 - 13	 2 (12:10, Tuesday, 22 <sup>nd</sup> June 2004)	 7 (10:46, Sunday, 20 <sup>th</sup> June 2004)	 12 (12:05, Sunday, 4 <sup>th</sup> July 2004)
14 - 15	 3 (14:40, Tuesday, 22 <sup>nd</sup> June 2004)	 8 (14:17, Sunday, 20 <sup>th</sup> June 2004)	 13 (16:24, Sunday, 4 <sup>th</sup> July 2004)
17 - 18	 4 (15:37, Tuesday, 22 <sup>nd</sup> June 2004)	 9 (15:01 Sunday, 20 <sup>th</sup> June 2004)	 14 (18:26, Sunday, 4 <sup>th</sup> July 2004)
19 - 22	 5 (18:30, Tuesday, 22 <sup>nd</sup> June 2004)	 10 (19:01, Sunday, 20 <sup>th</sup> June 2004)	 15 (18:34, Sunday, 4 <sup>th</sup> July 2004)

**Source:** All the pictures in the table taken by the author (2004)

**Note:** This section was quiet with so few activities during the morning that two observation slots were combined: 8-9 am and 10-11 am.

Figure 6.97: The built environment and activity patterns in the five realms of the Public Work Museum section







Observational section	Realms	Analysis of the built environment and activity patterns		
			Built environment	Users' activity patterns
	Water Surface		<ul style="list-style-type: none"> <li>East Marina</li> </ul>	<ul style="list-style-type: none"> <li>Walking along the marina deck</li> <li>Boating</li> </ul>
	Water's edge		<ul style="list-style-type: none"> <li>Marina Club</li> <li>Waterfront promenade</li> <li>Water taxi stop</li> <li>Restaurants</li> </ul>	<ul style="list-style-type: none"> <li>Walking and jogging</li> <li>Sitting and relaxing</li> <li>Watching fireworks (during an event day)</li> </ul>
	Foreground waterfront		<ul style="list-style-type: none"> <li>Harriot Hotel</li> <li>Public Works Museum</li> <li>Scarlett Place</li> <li>Civil War Museum</li> <li>Pedestrian and vehicular bridge</li> </ul>	<ul style="list-style-type: none"> <li>Walking and jogging</li> <li>Sitting and relaxing</li> <li>Regular children's gathering in front of public works museum</li> <li>Main users from the Harriot Hotel</li> <li>During the event day, local gathering took place along the water's edge for watching fireworks and Pier 6 concerts</li> </ul>
	Back ground Waterfront		<ul style="list-style-type: none"> <li>Commercial buildings</li> <li>Office buildings</li> </ul>	<ul style="list-style-type: none"> <li>Heavy traffic movement</li> </ul>
	Inland		<ul style="list-style-type: none"> <li>Office blocks</li> <li>Little Italy residential areas</li> </ul>	<ul style="list-style-type: none"> <li>Discourages walking</li> <li>Very disconnected from the waterfront</li> </ul>
	East Marina			
	Restaurant			
	Water taxi			
	Harriot Hotel			
	Public Works Museum			
	Pedestrian bridge			
	Squares			
	Scarlett Place			
	Pratt Street			
	President Street			
	Office buildings			

Figure 6.98: Analysis of activity types, patterns and levels of clustering along the Public Works Museum section throughout the day



	Detail of typical activities	Transformation of Activities Pattern During the Day						Key Findings
		8:00 - 9:00	10:00 - 11:00	12:00 - 13:00	14:30 - 15:30	17:00 - 18:00	19:00 - 20:00	
Weekdays	Jogging along the waterfront promenade	□	○	○	○	□	□	+ In general, activity levels are lower than in other sections + The lowest people's activity during the daytime + Main users are hotel users and local people + Jogging, walking and relaxing are main activity patterns + The Marina is an important gathering and focal point + The Public Works Museum is a key gathering magnet in this section
	Going for a walk	□	□	□	□	□	□	
	Gathering to board water taxis	○	□	■	■	■	□	
	Sitting on benches and relaxing	○	○	□	□	□	□	
	Eating at outdoor cafes and restaurants	○	○	□	□	□	□	
	Entering and leaving hotels	□	■	■	■	■	■	
	Car parking and dropping people at the hotel	□	■	■	■	■	■	
	Crossing the pedestrian bridge	○	□	□	□	□	□	
Weekends	Marina activities	○	○	■	■	■	■	+ + In general, activity levels are lower than other sections + + The lowest people's activity during daytime + + Main users are hotel users and local people + + Jogging, walking and relaxing are the main activity patterns + + The Marina is important gathering and focal point + + Local people use the water's edge for relaxing and sitting + + The Public Works Museum is the key gathering and is stronger than on a weekday
	Jogging along the waterfront promenade	□	○	○	○	□	□	
	Going for a walk	□	□	□	□	□	□	
	Gathering to board water taxis	○	■	■	■	■	□	
	Sitting on benches and relaxing	○	□	□	□	□	□	
	Eating at outdoor cafes and restaurants	○	○	■	■	■	■	
	Entering and leaving hotels	□	■	■	■	■	■	
	Car parking and dropping people at the hotel	□	■	■	■	■	■	
Event days (Tall Ship gatherings + Independence day)	Crossing the pedestrian bridge	○	□	□	□	□	□	+ + + The water's edge becomes an important bench for watching Pier 6 concerts and fireworks for the Fourth July Sailabration + + + Constant gathering from local people and tourist in the evening
	Marina activities	○	□	■	■	■	■	
	Jogging along the waterfront promenade	□	○	○	○	□	□	
	Going for a walk	□	□	□	□	□	□	
	Gathering to board water taxis	○	■	■	■	■	■	
	Sitting on benches and relaxing	○	□	□	■	■	■	
	Eating at outdoor cafes and restaurants	○	○	■	■	■	■	
	Entering and leaving hotels	□	■	■	■	■	■	
	Car parking and dropping people at the hotel	□	■	■	■	■	■	
	Crossing the pedestrian bridge	○	■	■	■	■	■	
	Marina activities	○	□	■	■	■	■	
	+++ Watching concerts at Pier 6	○	○	○	■	■	■	
	+++ Watching fireworks and gatherings	□	□	□	■	■	■	



## **8) Visitor Information Centre section**

### **About the section and the built environment**

The physical setting of this section is, as Figure 6.99 shows below, characterised by the visual and physical openness from the water surface, water's edge, foreground waterfront and background waterfront to the inland realm. With the openness, the narrow open parking lots in the foreground and background waterfront realm provide high accessibility for cars. In particular, along Conway Street, this section connects directly from the Visitor Information Centre to Camden Yard PSInet baseball stadium, which is a major civic space for Baltimore city and a large-scale sports entertainment facility. As a result, it has the strongest functional and physical interconnections between the waterfront and the inland downtown area compared to the rest of the sections. In addition, the water surface realm is one of the busiest because of regular large cruise services, provided by the Lady Baltimore, the Bay Lady and the Prince Charming, and Finger Pier, which serves boats and the City Clipper along the water's edge.

**Figure 6.99:** Overview of the Visitor's Information Centre section

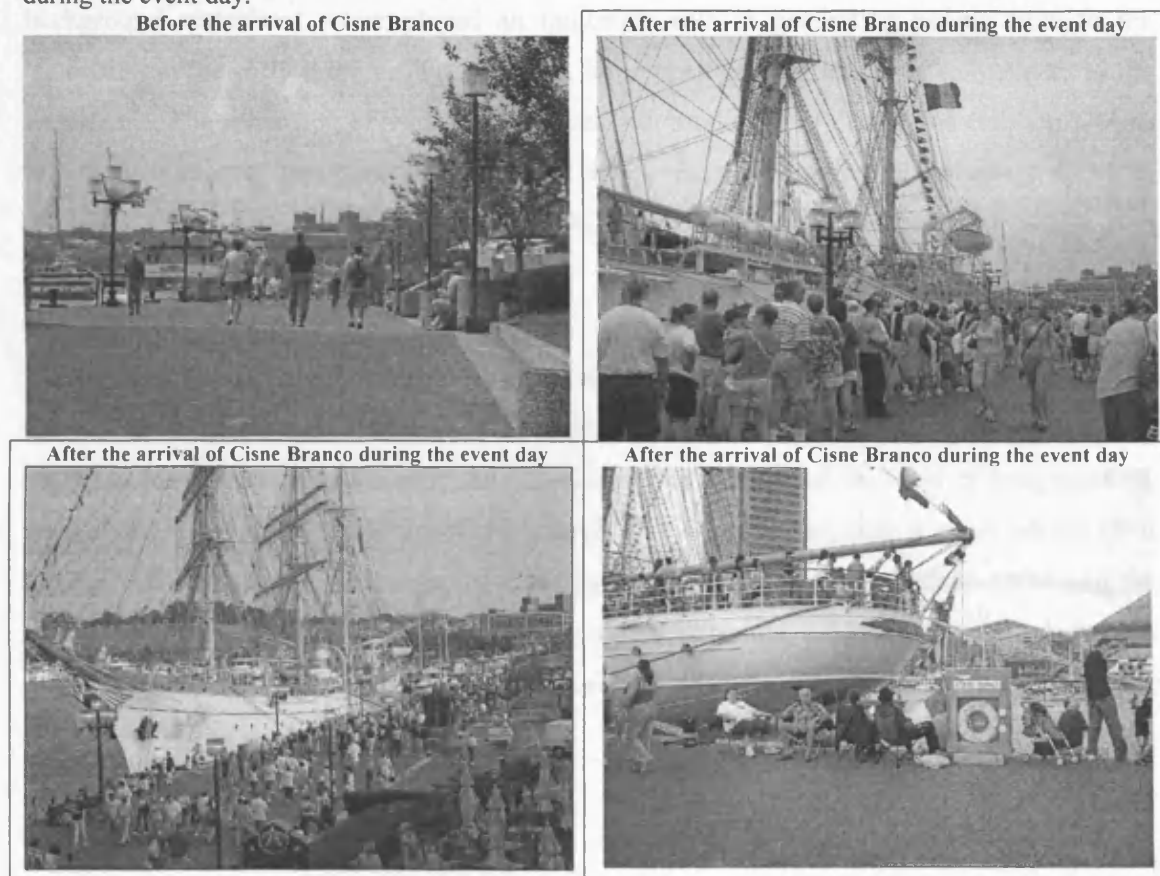


### **Users' activity types, patterns, pedestrian flow and the level of clustering**

The observational analysis found that the key usage patterns in this section can be categorised into five aspects. Firstly, people's attraction to and usage of the Visitor Information Centre was a key pedestrian activity pattern. It seemed that the Visitor Information Centre, for tourists, functioned like a first stop before their journey to the rest of the waterfront. Secondly,

regular but temporary ticketing, waiting, queuing and boarding activities took place to get on the three cruise ships. At the same time, the regular docking of the three cruise ships at the water's edge generated constant activity and congregation all day. Thirdly, this section was considered as a junction node for users of the promenade and football spectators coming from Camden Yard Stadium. As a result, before and after baseball matches, these spectators moved towards the waterfront along Conway Street, giving rise to a strong pedestrian flow. Fourthly, the spacious parking lots in the foreground waterfront realm provided vehicles with direct and convenient access to this section from Light Street. Finally, the installation of the historic Tall Ship from Brazil, the Cisne Branco, during event days, transformed the use patterns of the waterfront promenade from one of a pedestrian flow corridor to one of a pedestrian destination as an activity node at the floating landmark (Figure 6.100).

**Figure 6.100:** Transformation of the waterfront promenade created by Cisne Branco from Brazil during the event day.



The level of pedestrian flow and congregation was strong in the afternoon on weekdays and weekends and event days. The flow reached a peak between 11am and 8pm. The flow from sports facilities in Camden Yard Stadium played an important role in sustaining the pedestrian flow and congregation. The most dramatic changes took place in this section during event



days. The installation of the Tall Ship, the Cisne Branco from Brazil, moored along the promenade, became a floating attraction and landmark and a focal point on the waterfront, creating new activity nodes during the whole event day. It is interesting that how influential the temporary floating Tall Ships are in animating this section and the waterscape environment (Figure 6.100).

### **Users' activity patterns in the five realms**

Each of the five realms of this section had busy pedestrian flows and activities throughout the day, with direct visual contact from the waterfront to the elevation of the stadium at Camden Yard. According to the observation, the recently built Visitor Information Centre (2003), located in the centre of the foreground waterfront realm, was constantly used by tourists and visitors throughout its opening hours. In addition, three cruise ships in the water surface realm created regular activity through boarding and disembarking. The Harbour Court Hotel in the background waterfront realm played an important role in generating people flow to the waterfront in the early morning. Furthermore, large open parking lots gave easy access to the waterfront. The existence of wide open spaces surrounding the Visitor Information Centre provided significant opportunities for a range of activities, such as group gathering, sitting in the green spaces, relaxing, and watching people.

### **Key Findings**

In short, the importance of the waterscape environment with moored boats at the marina and the historic ships was again identified as animating the section and creating various activity patterns. It was clear that the international events also influenced the level of congregation, pedestrian flows and activity patterns although they often lasted only a short period (five days). As the relationship between the Camden Yard sports park in the inland realm and the waterfront demonstrates, interactive physical accessibility and functional exchange between the waterfront and the inland realm was crucial to sustain activities and congregation throughout the day.

**Figure 6.101:** Various faces of the Visitor Information Centre during weekdays, weekends and event days

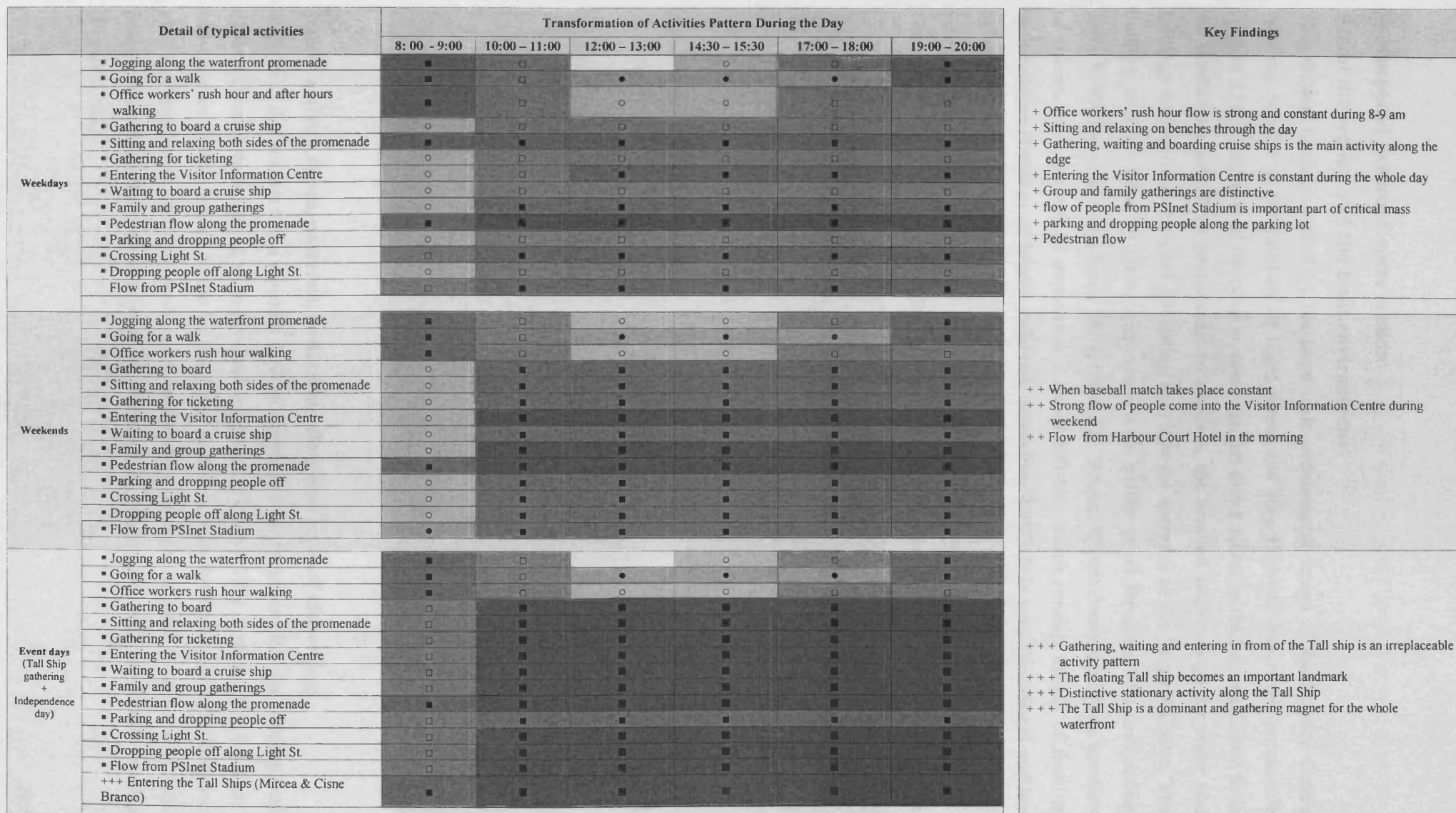
	Weekdays	Weekends	Event days
8 - 9	 1 (09:00 Wednesday, 23 June 2004)	 7 (10:18, Sunday, 27 <sup>th</sup> June 2004)	 13 (08:34, Thursday, 1 <sup>st</sup> July 2004)
10 - 11	 2 (10:57, Wednesday, 23 June 2004)	 8 (12:09, Saturday, 26 <sup>th</sup> June 2004)	 14 (10:17, Thursday, 1 <sup>st</sup> July 2004)
12 - 13	 3 (11:25, Wednesday, 23 June 2004)	 9 (12:13, Saturday, 26 <sup>th</sup> June 2004)	 15 (14:39, Saturday, 3 <sup>rd</sup> July 2004)
14 - 15	 4 (14:31, Wednesday, 14 <sup>th</sup> July 2004)	 10 (12:51, Saturday, 26 <sup>th</sup> June 2004)	 16 (14:51, Thursday, 1 <sup>st</sup> July 2004)
17 - 18	 5 (17:40, Wednesday, 23 June 2004)	 11 (17:30, Saturday, 26 <sup>th</sup> June 2004)	 17 (19:07, Sunday 4 <sup>th</sup> July 2004)
19 - 22	 6 (18:55, Wednesday, 23 June 2004)	 12 (19:46, Saturday, 19 <sup>th</sup> June 2004)	 18 (19:31, Sunday 4 <sup>th</sup> July 2004)

Source: All pictures in the table taken by the author (2004)

Figure 6.102: The built environment and activity patterns in the five realms of the Visitor Information Centre section

Observational section	Analysis of the built environment and activity patterns		
		Key built environment	User's activity patterns
	Water Surface	<ul style="list-style-type: none"> <li>▪ Finger Pier</li> <li>▪ Private boats</li> <li>▪ City Cruise (City Clipper, Lady Baltimore, Bay Lady, Prince Charming)</li> <li>▪ International tall ship – Mircea (Romania), Cisne Branco (Brazil) during the Event</li> </ul>	<ul style="list-style-type: none"> <li>▪ Gathering and anchoring</li> <li>▪ Gathering for boarding</li> <li>▪ Watching tall ships</li> <li>▪ Entering a Tall Ship</li> </ul>
	Water's edge	<ul style="list-style-type: none"> <li>▪ Promenade</li> </ul>	<ul style="list-style-type: none"> <li>▪ Passing</li> <li>▪ Sitting and relaxing on both sides of the promenade</li> <li>▪ Waiting to board</li> </ul>
	Foreground waterfront	<ul style="list-style-type: none"> <li>▪ Ticket office</li> <li>▪ Temporary drink shop</li> <li>▪ Visitor Centre</li> <li>▪ Green open space</li> <li>▪ Parking lot</li> </ul>	<ul style="list-style-type: none"> <li>▪ Gathering for ticketing</li> <li>▪ Sitting on benches and in green spaces</li> <li>▪ Entering the Visitor Centre</li> <li>▪ Parking and dropping people</li> <li>▪ Ride the Channel Tunnel Duck</li> <li>▪ Waiting to board</li> </ul>
	Background Waterfront	<ul style="list-style-type: none"> <li>▪ Harbour Court Hotel</li> <li>▪ Open parking lot</li> <li>▪ Residential house</li> </ul>	<ul style="list-style-type: none"> <li>▪ Crossing Light Street</li> <li>▪ Flow of people from PSInet Stadium</li> <li>▪ Getting out of coaches and cars</li> <li>▪ Group gathering along the street</li> </ul>
	Inland	<ul style="list-style-type: none"> <li>▪ Camden Yard</li> <li>▪ Convention Centre</li> <li>▪ Light Railway Station</li> <li>▪ PSInet Stadium</li> </ul>	<ul style="list-style-type: none"> <li>▪ Strong pedestrian flow from Camden Yard</li> </ul>

Figure 6.103: Analysis of activity types, patterns and levels of clustering along the Visitor Information Centre section throughout the day



## 9) Maryland Science Centre section

### About the section and the built environment

This section is characterised by the large-scale architectural design of the Science Centre building, located at the junction of Light Street and Key Highway waterfront promenade (Figure 6.104). Because of its location, users can get direct access to the Science Centre from the continuous waterfront promenade. In addition, the levelled water's edge for water taxi landings that can also be used for sitting provides the entrance to the Science Centre. The building is surrounded by green open space with quality street furniture. The surrounding space is often used as a children's playground. The Science Centre draws significant numbers of visitors - average annual attendance is about 600,000, which consists mainly of families with children (Director of Media Relations, Interview, 2002). It is very educational and has cultural facilities as well.

**Figure 6.104:** Overview of the Maryland Science Centre section. Quality open green spaces become an important playground for children.



### Users' activity types, patterns, pedestrian flow and level of clustering

In general, this section had a constant flow of people and congregation until the opening hour of the Science Centre during weekdays and weekends (Figure 6.105). It means that the users' activities are mainly related to the building and its indoor year-round programmes. However, after working hours, the wide open space surrounding the building tends to be used by local people from the nearby residential area for walking, sitting and relaxing in the evening (Figure 6.105).

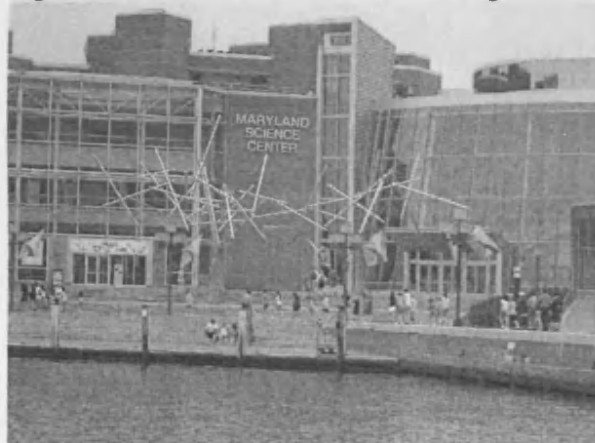


**Figure 6.105:** The flow of people from the residential area located behind Federal Hill in the evening



The distinctive characteristics of users' activity patterns along this section can be summarised as follows. Firstly, the Science Centre plays a significant role in generating indoor and outdoor activity. As a result, it enables usage of the waterfront in this section, balancing the heavy use generated by the Aquarium and Harbourplace. Secondly, children and families are the major users of the Science Centre (Figure 6.106).

**Figure 6.106:** Children and families entering the Science Centre



The surrounding open space provided them with a high quality environment with street furniture, public art and green space. Thirdly, the section was an important walking route for city workers on their way to the office in the morning and home again in the evening. However, during event days, the whole open space, especially on final event days, was occupied by various types of users, providing a useful congregation place for celebrations and fireworks (Figure 6.104).

As Figure 6.110 showed, the level of usage of the Science Centre was stronger on weekends and event days than on weekdays. Late afternoons experience the greatest activity in this section. During evenings, after 6pm, there is a constant flow into the section from the

residential area behind Federal Hill Park for relaxing and sitting, which resulted in evening activities along this section. Pedestrian flow became heavier during the event days from 30<sup>th</sup> June to 4<sup>th</sup> July 2004 (Figure 6.107).

**Figure 6.107:** Waterfront promenade and open space around the Science Centre became an important public amenity for events.



### **Users' activity patterns in the five realms**



















Due to the influential function of the Science Centre, most activities took place in the foreground waterfront realm, where the building is located. The water's edge was used for water taxi stops. The waterfront promenade connects to the south of the case study area and is an important corridor for pedestrian flow. As Figure 6.107 shows, the levelled water steps in the water's edge realm allowed dense congregation to watch the fireworks during event days.

### **Findings**

According to observations, cultural facilities, especially the CG I building, were important in attracting people and creating a congregation that led to complementary activities inside and outside the building. The building acted as an activity generator to animate the section. In addition, the provision of open space created a people-oriented waterfront environment.

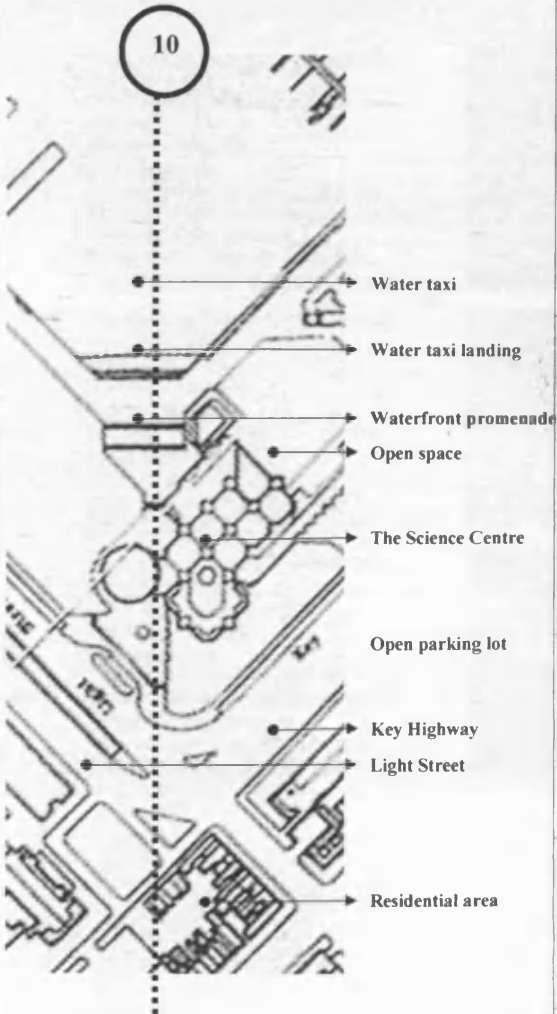







**Figure 6.108:** Various faces of the Science Centre section during weekdays, weekends and event days

	Weekdays	Weekends	Event days
8 - 9	 1 (09:13, Wednesday 23 <sup>rd</sup> June 2004)	 7 (09:13, Sunday, 27 <sup>th</sup> June 2004)	 13 (08:41, Thursday, 1 <sup>st</sup> July 2004)
10 - 11	 2 (10:26, Wednesday, 23 <sup>rd</sup> June 2004)	 8 (10:16, Sunday, 27 <sup>th</sup> June 2004)	 14 ( 11:19, Sunday, 4 <sup>th</sup> July 2004)
12 - 13	 3 (12:21, Wednesday, 23 <sup>rd</sup> June 2004)	 9 (12:34, Saturday 26 <sup>th</sup> June 2004)	 15 (12:31, Thursday, 1 <sup>st</sup> July 2004)
14 - 15	 4 (14:55, Wednesday, 23 <sup>rd</sup> June 2004)	 10 (14:58, Saturday, 26 <sup>th</sup> June 2004)	 16 (14:44, Saturday, 3 <sup>rd</sup> July 2004)
17 - 18	 5 (17:26, Wednesday, 23 <sup>rd</sup> June 2004)	 11 (18:30, Saturday, 26 <sup>th</sup> June 2004)	 17 (14:59, Thursday, 1 <sup>st</sup> July 2004)
19 - 22	 6 (19:02, Wednesday, 23 <sup>rd</sup> June 2004)	 12 (19:46, Saturday, 19 <sup>th</sup> June 2004)	 18 (19:30pm, Sunday, 4 <sup>th</sup> July, 2004)

Source: All pictures in the table taken by the author (2004)

**Figure 6.109:** The built environment and activity patterns in the five realms of the Science Centre section

Observational section	Realms	Analysis of the built environment and activity patterns		
		Built Environment	Key Built Environment	Activity patterns
	Water Surface		<ul style="list-style-type: none"> <li>Water taxi</li> <li>Seaport taxi</li> </ul>	<ul style="list-style-type: none"> <li>Boarding and dropping people</li> <li>Sitting and relaxing on the landing steps</li> </ul>
	Water's edge		<ul style="list-style-type: none"> <li>Water taxi &amp; Seaport Taxi landing</li> <li>Sitting Steps</li> <li>Promenade</li> </ul>	<ul style="list-style-type: none"> <li>Pedestrian flow and walking along the promenade</li> <li>Boarding the water taxi</li> <li>Children playing on the landing &amp; promenade</li> <li>Sitting on the steps</li> </ul>
	Foreground waterfront		<ul style="list-style-type: none"> <li>Maryland Science Centre (MSC)</li> <li>MSC entrance Square</li> <li>Public art sculpture</li> <li>Building</li> <li>Green Space</li> </ul>	<ul style="list-style-type: none"> <li>Entering and leaving the MSC building</li> <li>Sitting on benches</li> <li>Children playing in the open space at the entrance</li> <li>Riding a merry-go-round</li> </ul>
	Back ground Waterfront		<ul style="list-style-type: none"> <li>Residential area</li> </ul>	<ul style="list-style-type: none"> <li>Flow of local people from the residential area</li> </ul>
	Inland		<ul style="list-style-type: none"> <li>Residential and office buildings</li> </ul>	<ul style="list-style-type: none"> <li>Few activities and quiet</li> </ul>

Note: the Maryland Science Section plan in the table is before the refurbishment of the Science Centre

Figure 6.110: Analysis of activity types, patterns and levels of clustering along the Science Centre section



	Detail of typical activities	Transformation of Activities Pattern During the Day						Key Findings
		8:00 - 9:00	10:00 - 11:00	12:00 - 13:00	14:30 - 15:30	17:00 - 18:00	19:00 - 20:00	
Weekdays	Jogging along the waterfront promenade	■	□		○	□	■	+ Major way for local people to workplace in the morning and going for a walk from Federal Hill residential area + the MSC is a major attracting magnet + Children are important customers of MSC and its surrounding open space + well designed street furniture and public art enhance the quality of open space around the MSC building – Harry D. Kaufman Pavilion + The merry-go-round operates throughout the whole day
	Going for a walk	■	□	●	●	●	■	
	Office workers' rush hour and after hours walking	■	□	○	○	□	□	
	Boarding a water taxi	○	●	●	●	●	●	
	Children playing	○	■	■	■	■	■	
	Entering and leaving the MSC building	○	■	■	■	■	●	
	Sitting on benches and in the green open space	○	□	□	□	□	□	
	Riding the Merry-go-round	○	■	■	■	■	■	
	Pedestrian flow along the promenade	○	■	■	■	■	■	
	Flow of local people from the residential area	■	○	○	○	□	■	
Weekends	Jogging along the waterfront promenade	■	□	○	○	□	■	++ The level of entering the MSC is higher than weekdays and mainly from the direction of the Harbourplace
	Going for a walk	■	□	●	●	●	■	
	Office work rush hour walking	■	□	○	○	□	□	
	Boarding a water taxi	○	●	●	●	●	●	
	Children playing	○	■	■	■	■	●	
	Entering and leaving the MSC building	○	■	■	■	■	□	
	Sitting on benches and in the green open space	○	■	■	■	■	■	
	Riding the Merry-go-round	○	■	■	■	■	■	
	Pedestrian flow along the promenade	□	■	■	■	■	■	
	Flow of local people from the residential area	■	■	■	■	■	■	
Event days (Tall Ship gatherings + Independence day)	Jogging along the waterfront promenade	■	□		○	□	■	+++ Beach volleyball and football match increase the gathering during the day +++ Pedestrian flow is much stronger +++ during events, the flow of local people during the evening increased and was constant along the MSC building +++ Sitting and relaxing is also a dominant activity during the evening
	Going for a walk	■	□	●	●	●	■	
	Office work rush hour walking	■	□	○	○	□	□	
	Boarding a water taxi	○	□	□	□	□	□	
	Children playing	○	■	■	■	■	■	
	Entering and leaving the MSC building	□	■	■	■	■	□	
	Sitting on benches and green openspace	□	■	■	■	■	■	
	Riding the Merry-go-round	□	■	■	■	■	■	
	Pedestrian flow along the promenade	□	■	■	■	■	■	
	Flow of local people from the residential area	■	■	■	■	■	■	

## **10) Rash Field and Federal Hill Park section**

### **About the section and the built environment**

This section is characterised by a combination of marina, wide open space (Rash Field) and green park (Federal Hill), which straddles over from the water surface to the foreground waterfront realm (Figure 6.111). In the inland realm, large residential blocks are located behind the historic Federal Hill. In particular, the levelled Federal Hill, located in the background waterfront realm, provides the most panoramic vantage point for a view over the Inner Harbour. Rash Field in the foreground waterfront realm is a local open playground and sports area. Overall, because of this, this section has a good sense of openness, without any buildings from the water surface to the foreground waterfront realm. At the same time, it has the biggest public space in the case study area. The Marina in the water surface realm provides the unique characteristics of this section.

**Figure 6.111:** Overview of the Rash Field and Federal Hill section.



### **Users' activity types, patterns, pedestrian flow and level of clustering**

In general, this section was used less by tourists compared to the other sections. In particular, Federal Hill Park is predominantly used by local residential people for relaxing and



meditating on the panoramic view of the Inner Harbour during weekdays and weekends. However, during event days, the section was fully occupied by local people and tourists. Rash Field however was less used during the daytime but it was found that local people played beach volleyball and football in the evening (Figure 6.112). The level of use and pedestrian flow from the residential area is low except on Saturday evenings and event days. During the 4<sup>th</sup> July Sailabration firework evening, however, the whole space of this section was fully occupied and used by a tremendous number of people, especially along the Federal Hill Park side in the background waterfront realm (Figure 6.113).

**Figure 6.112:** Beach volleyball in Rash Field on a weekend evening



Figure 6.114 illustrates users' typical activity patterns, and how this section of the waterfront has been used throughout the day, weekday, weekends and event days. There were two distinctive characteristics of the section throughout the day. Firstly, Federal Hill Park, Rash Field and the waterfront promenade were used mainly by local residents and families for walking, relaxing, and sitting rather than visitors and tourists. Secondly, the groups of families with children were often found after working hours. As a result, the flow from residential areas played an important role in generating evening activities such as walking, sitting on benches and eating, throughout weekdays and weekends. The usage by local people was constant and heavy during event days. During the last day of events, the level of activity by local residents increased tremendously to watch the fireworks (Figure 6.113).

**Figure 6.113:** Local people wait for the 4<sup>th</sup> July Sailabration fireworks at Federal Hill Park



















### **Users' activity patterns in the five realms**

In general, relaxing, such as sitting, and walking activities took place throughout this section, which has wide openness from the water's edge and the foreground waterfront to the background waterfront realm. Rash Field in the foreground waterfront realm has important outdoor sports facilities and city-wide open space, but it was not often used by people until the late afternoon. In terms of use patterns, the function of Federal Hill Park was also similar to that of Rash Field during the weekday and the weekend. However, the hillside became an important observation platform for enjoying the waterscape and fireworks during event days.

### **Findings**

This section mainly consists of public open space, park and waterfront promenade. Because of that and its nearness to local residential blocks, it becomes a key relaxing area for local people rather than tourists. Although there is spacious open space providing a panoramic waterscape from Rash Field and historic Federal Hill Park, this section is underused during weekdays and the weekend compared to other sections, except for event days. However, as the observation showed, it provides great potential for various international and 'city-wide' outdoor events and programmes. The visual openness of this section from background waterfront to the water surface realm on a grand scale provides a sense of waterfront place and public domain. According to the observational analysis, users' experience of the cultural waterfront and cultural image is strongly related to the visual experience between the waterscape environment and the townscape environment.

**Figure 6.114:** Various faces of the Rash Field and Federal Hill Park section during weekdays, weekends and event days

	Weekdays	Weekends	Event days
8 - 9	 1 (09:16, Wednesday, 23 <sup>rd</sup> June 2004)	 7 (09:14, Saturday, 20 <sup>th</sup> June 2004)	13 (see 7 in the table)
10 - 11	 2 (10:15, Thursday, 24 <sup>th</sup> June 2004)	 8 (10:30, Sunday, 20 <sup>th</sup> June 2004)	14 (see 7 in the table)
12 - 13	 3 (12:41, Friday, 26 June 2004)	 9 (12:55 Sunday, 20 <sup>th</sup> June 2004)	 15 (14:42, Saturday, 3 <sup>rd</sup> July 2004)
14 - 15	 4 (14:51, Wednesday, 23 <sup>rd</sup> June 2004)	 10 (15:58, Saturday, 19 <sup>th</sup> June 2004)	 16 (14:57, Saturday, 3 <sup>rd</sup> July 2004)
17 - 18	 5 (18:27, Tuesday, 22 <sup>nd</sup> June 2004)	 11 (18:22, Saturday, 19 <sup>th</sup> June 2004)...	 17 (14:57, Saturday, 3 <sup>rd</sup> July 2004)...
19 - 22	 6 (19:00, Wednesday 23 <sup>rd</sup> June 2004)	 12 (19:04, Saturday, 27 <sup>th</sup> June 2004) ...	 18 (20:21, Sunday, 4 <sup>th</sup> July 2004)

Source: All pictures in the table taken by the author (2004).



Figure 6.115: The built environment and activity patterns in the five realms of the Rash Field and Federal Hill Park section

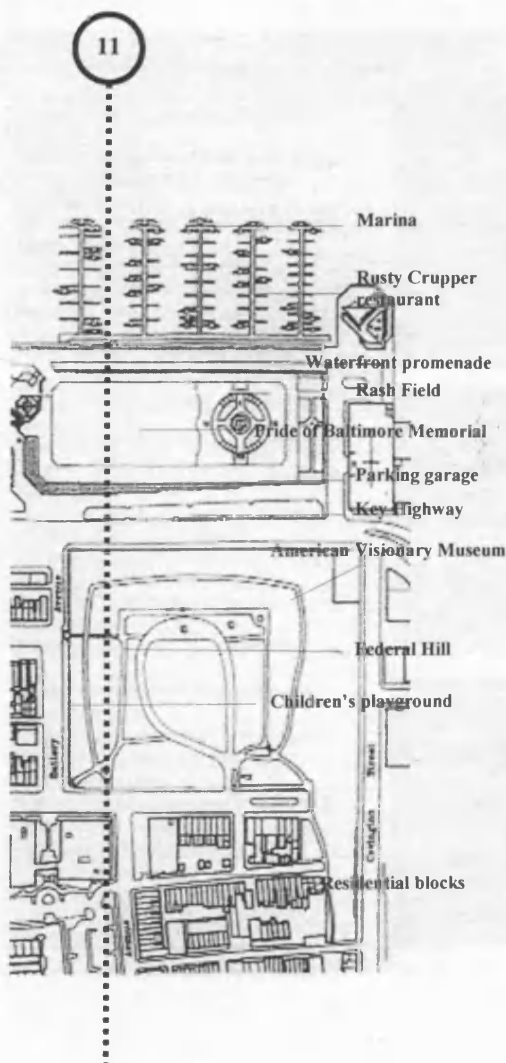




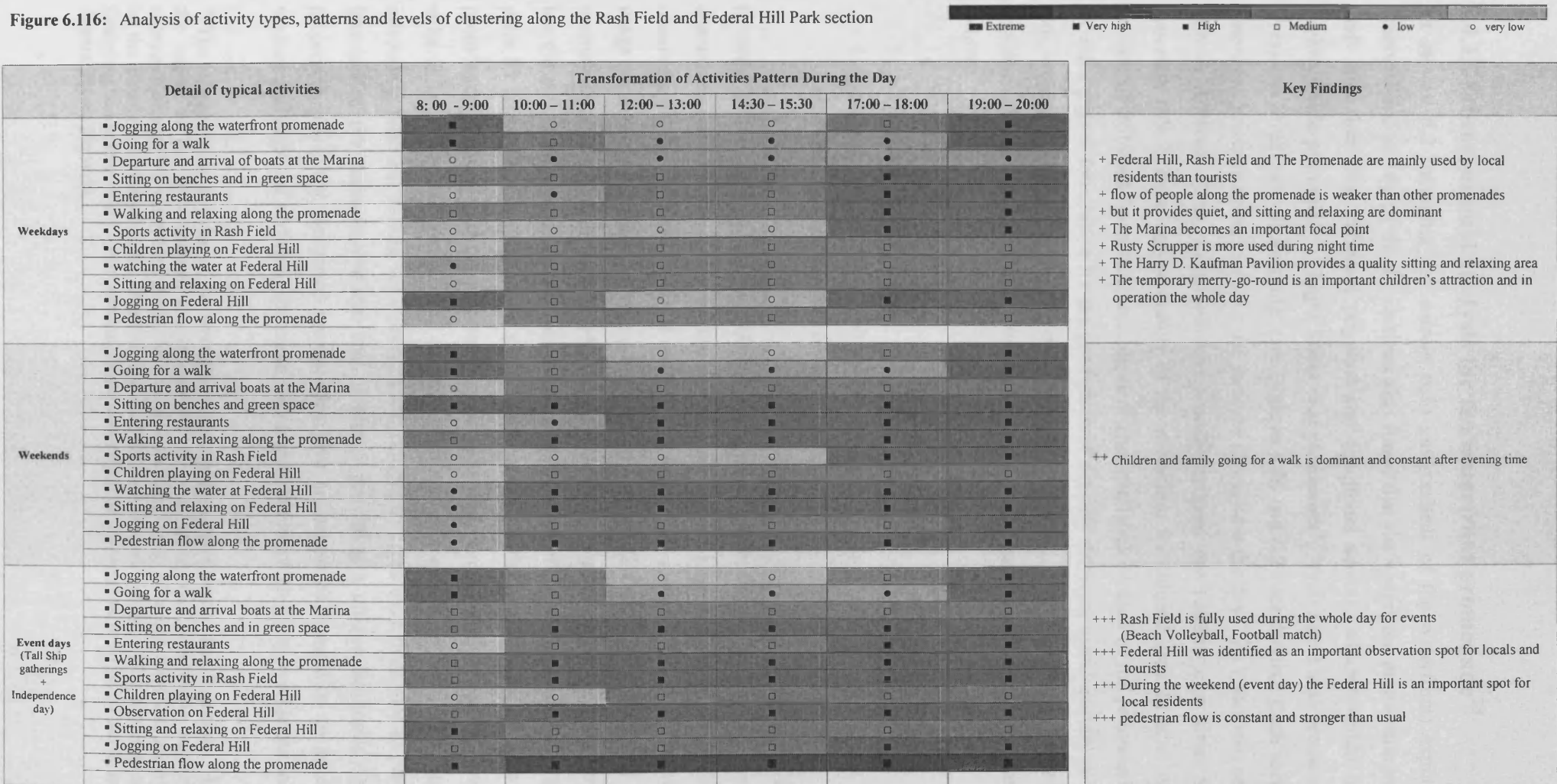
Observational analysis	Analysis of the built environment and activity patterns		
	Built Environment	Key built environment	Key Activity patterns
 <p>Map labels: Marina, Rusty Crupper restaurant, Waterfront promenade, Rash Field, Pride of Baltimore Memorial, Parking garage, Key Highway, American Visionary Museum, Federal Hill, Children's playground, Residential blocks, Battery, Crutcher Street.</p>	Water Surface	 <ul style="list-style-type: none"> <li>Boats</li> <li>Marina</li> </ul>	<ul style="list-style-type: none"> <li>Anchoring boats</li> <li>Departing and arriving boats</li> </ul>
	Water's edge	 <ul style="list-style-type: none"> <li>Promenade</li> <li>Restaurant (Rusty Scrupper)</li> </ul>	<ul style="list-style-type: none"> <li>Walking along the promenade</li> <li>Sitting along the benches</li> <li>Entering restaurants</li> <li>Jogging</li> </ul>
	Foreground waterfront	 <ul style="list-style-type: none"> <li>Rash field</li> <li>Pride of Baltimore Memorial</li> <li>Harry D. Kaufman Pavilion</li> <li>Parking lot</li> <li>Benches</li> <li>Green space</li> </ul>	<ul style="list-style-type: none"> <li>Playing volley ball and football( event days)</li> <li>Walking and relaxing</li> <li>Sitting on benches and in green space</li> <li>Parking the car</li> </ul>
	Back ground Waterfront	 <ul style="list-style-type: none"> <li>Federal Hill</li> <li>American Visionary Museum</li> <li>Children playground</li> <li>Residential area</li> </ul>	<ul style="list-style-type: none"> <li>Sitting and relaxing on benches</li> <li>Children playing</li> </ul>
	Inland	<ul style="list-style-type: none"> <li>Residential housing</li> </ul>	

Figure 6.116: Analysis of activity types, patterns and levels of clustering along the Rash Field and Federal Hill Park section



#### **6.4.1.2 Observational analysis for the waterfront promenade<sup>18</sup>**

As section 6.2 (mapping the current built environment of the waterfront) explained, the observational survey of the 11 sections also found that the waterfront promenade in the case study area has four different physical and functional sectors, which divided into 'Key Highway side promenade', 'Light Street side promenade', 'Pratt Street side promenade', and 'President Street side promenade' (see Figures 6.26 and 6.27 for details). Each sector of the waterfront promenade had various use patterns throughout the day. The waterfront promenade, with its different form, functional and transformational use patterns over time, played an important role in creating the quality of the waterfront for cultural uses. In other words, the mixture of different functional and physical characteristics of each of the promenade sectors provides a good foundation for the generation of not only different users' activity patterns and uses but also different visual and psychological experiences. The observations identified three important characteristics affecting users' activity patterns and the quality of the promenade, as follows:

1. physical characteristics
2. functional characteristics
3. usage patterns of the promenade during the day - morning, afternoon, evening, weekday, weekend and event day.

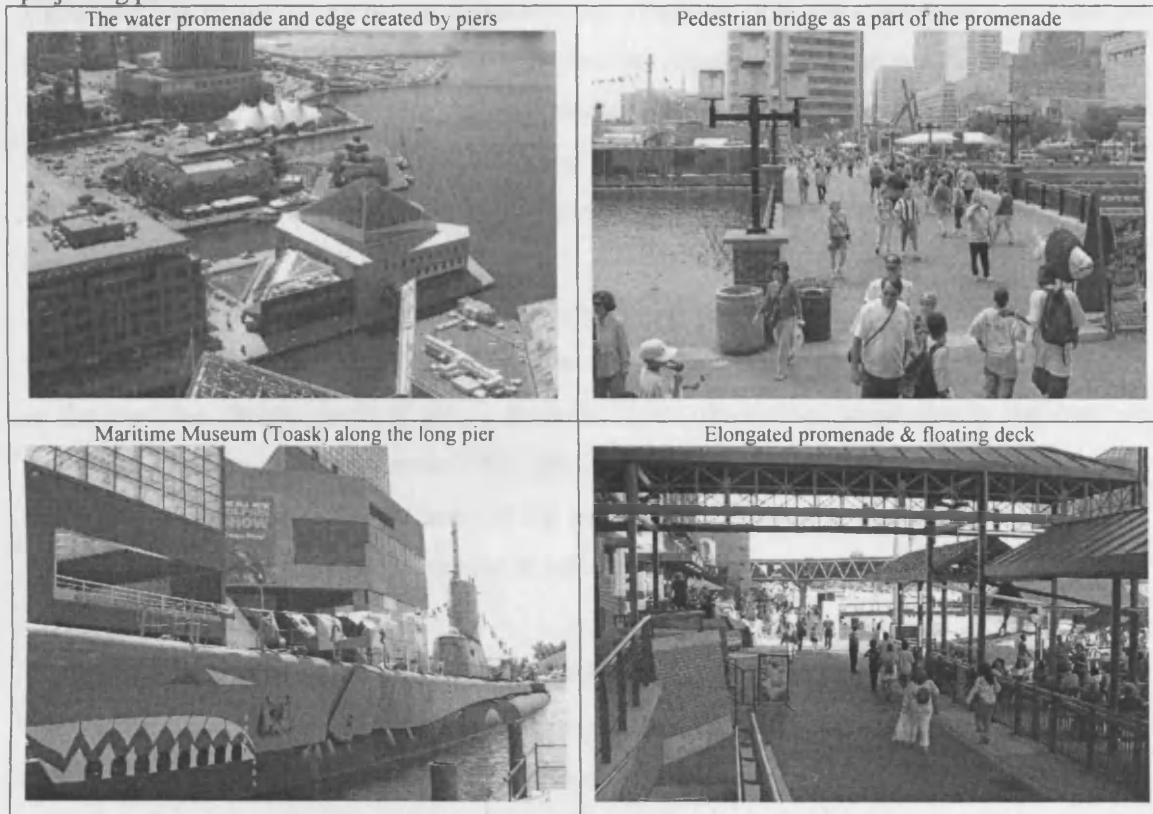
In terms of the physical characteristics of the promenade, Figure 6.30 shows the physical characteristics of each sector of the promenade and its key attractions. According to the observations, the physical traits of each of the waterfront promenades significantly affected usage patterns, generating activities and the setting for CG I to CG VII buildings along the promenade. For example, compared to other sectors of the promenade, the Pratt Street sector has the most complicated geometric water's edge because of the construction of the projecting piers for industrial purposes in the past. There are five distinctively identified piers along the promenade. Transformation of these former industrial piers, characterised by long, narrow spits of land forming a canal-like water's edge and promenade on both sides, provides an interesting physical setting for cultural uses: bridges to cross over from pier to pier; and the location of the Aquarium at the end of pier 5 providing a unique landmark. Due to the projecting piers, the elongated promenades give an important foundation to accommodate various activities. In addition, the canal-like waterfront between piers provide the location for

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<sup>18</sup> The observational analysis of the waterfront promenade is not a part of the 11 sections. However, in the course of the observational analysis of the 11 sections, it was possible to note the overall characteristics of the waterfront promenade in the case study area. Although there was an investigation of the physical and functional characteristics of the overall promenade in the previous section 6.2 (mapping the current built environment), there was a lack of explanation in terms of users' use patterns depending on the time.

the Maritime Museum. The elongated water's edge with promenade becomes an important foundation to create and sustain activity and pedestrian flow, as well as the various physical settings for buildings (Figure 6.117).

**Figure 6.117:** The Pratt Street side promenade and its distinctive geometric shape caused by the projecting piers



The functional characteristics of each of the four promenade sectors are determined by four influential factors, which are as follows:

1. 'types of buildings' along the promenade.
2. 'users' of the promenade.
3. 'usage patterns of the water surface area' along the promenade.
4. 'spatial structure of the promenade between the water and the built environment'

The character of the promenade is determined depending on the combination of these four factors on each promenade sector. In addition, the different combination of these factors in each of the four promenade sectors has played a significant role in creating cultural uses along the waterfront, which in turn provides the Inner Harbour with diverse activities and uses. For example, the Key Highway side waterfront promenade contrasts with other promenade sectors because of the combination of 'types of buildings', 'users', 'usage patterns of water surface' and the 'spatial structure of the promenade'. The promenade is characterised by the setting of

the historic Federal Hill Park in the background waterfront realm and an open local playground Rash Field next to the promenade in the foreground waterfront realm. Moreover, it is characterised by the Federal Hill residential community in the inland area. Due to the open space and park without buildings along the promenade, the promenade is mainly used by local people rather than tourists or visitors throughout the day. In contrast, the Pratt Street side waterfront has totally the opposite characteristics, resulting from the composition of different types of buildings such as the Maritime Museum, the Aquarium, Harbourplace, the Hard Rock café, the Paddling boat, the USS Constellation, offices, the ESPN zone, and Hotels. Both 'buildings' and 'usage patterns of the water surface' create the most vibrant and lively entertainment, leisure and educational atmosphere along this sector of the promenade.

Finally, each of the four sectors of the promenade are also distinctively characterised by the transformation of use patterns in terms of time - weekday, weekend and event day. As shown in the previous chapter, each of the 11 sections of the observation areas clearly demonstrate the transformation of usage patterns throughout time. Interestingly, the transformation takes place with a change to different users at the same time. As a result, the transformation plays an important role in generating diversity in cultural functions.

#### **6.4.1.3 Observation analysis for events and programmes**

The influential role of events and programmes, and various types of events were identified by the observations of the 11 sections. The evidence also showed how events and programmes contributed to the creation of the cultural ambience of the waterfront (Figure 6.118). Like CG I to VII buildings, the intangible events /programmes played a significant role in attracting people and sustaining the congregation. In the case study area, two types of events and programmes are broadly identified - 'indoor events' and 'outdoor events'. On the one hand, the characteristics of the 'indoor events/programmes' are strongly related to the function of individual buildings. On the other hand, 'outdoor events and programmes' are strongly integrated to the existence of the water and water-related activities, and musical performances. Overall, five types of events and programmes are found in terms of the scale of events and programmes, and who organises them, as follows (Figure 6.119):

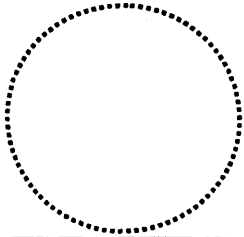
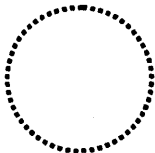
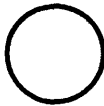


1. 'international-wide and centrally organised' events and programmes
2. 'city-wide and centrally organised' events and programmes
3. 'building-related' events and programmes
4. 'regular and site-specific' events and programmes
5. 'random on-street' events/programmes



**Figure 6.118:** Collection of outdoor events and programmes found during the observational survey



**Figure 6.119: Five types of events and programmes found in the case study area**

types	Characteristics	Events	Influence on the waterfront
<b>1. International-wide and centrally organised events</b>	<ul style="list-style-type: none"> <li>Temporal but extremely influential on the overall waterfront</li> <li>Takes place in the water surface realm</li> </ul>	<ul style="list-style-type: none"> <li>Fourth July Sailabration – International Tall Ships exhibition (30<sup>th</sup> June – 4<sup>th</sup> July)</li> </ul>	
<b>2. City-wide and centrally organised events</b>	<ul style="list-style-type: none"> <li>most of the events take place on the waterfront</li> <li>all of them are outdoor events</li> </ul>	<ul style="list-style-type: none"> <li>Valentine Weekend Cruise (13<sup>th</sup> – 15<sup>th</sup> Feb)</li> <li>The Baltimore St. Patrick Parade &amp; Shamrock 5k Run (14<sup>th</sup> March)</li> <li>Kidney Walk (29<sup>th</sup> March)</li> <li>Inner Harbour East Celebration (11<sup>th</sup> April)</li> <li>Volvo Waterfront Concert Series (formerly known as Baltimore Waterfront Festival) (7<sup>th</sup> – 9<sup>th</sup> May)</li> <li>Fourth July Sailabration firework</li> <li>Baltimore's Thanksgiving Parade (20<sup>th</sup> November)</li> <li>Baltimore's New Year's Eve Spectacular (31<sup>st</sup> December)</li> </ul>	
<b>3. Building-related events</b>	<ul style="list-style-type: none"> <li>Most of them are indoor events</li> <li>Each building-related event is a gathering place at the same time</li> <li>Despite indoor events, the location of each buildings becomes an important activity node</li> <li>The most characteristic of building-related events is using historical ships in the Maritime Museum as an event spot</li> </ul>	<ul style="list-style-type: none"> <li>Aquarium</li> <li>Harbourplace and the Gallery</li> <li>Maryland Science Centre</li> <li>Pier 6 Concert Pavilion</li> <li>Power Plant</li> <li>Port Discovery Museum</li> <li>Maritime Museum</li> <li>World Trade Centre Observation Floor</li> </ul>	
<b>4. Regular site-specific events</b>	<ul style="list-style-type: none"> <li>Important attraction point</li> <li>Related with activity node</li> <li>Regular, and related with function of near buildings (e.g. the Harbourplace)</li> </ul>	<ul style="list-style-type: none"> <li>Harbour place Amphitheatre</li> </ul>	
<b>5. Random street events</b>	<ul style="list-style-type: none"> <li>Irregular and random</li> <li>Spreading all over the waterfront</li> </ul>	<ul style="list-style-type: none"> <li>Street performance along the waterfront</li> </ul>	

**Note:** 1. All the events in the table are based on the Baltimore Area and Convention Visitor's Association's 2004 event list.

2. the dotted circles in the table represent the temporal character of the events/programme

3. the continuous line circles in the table represent the constant character of the events/programme

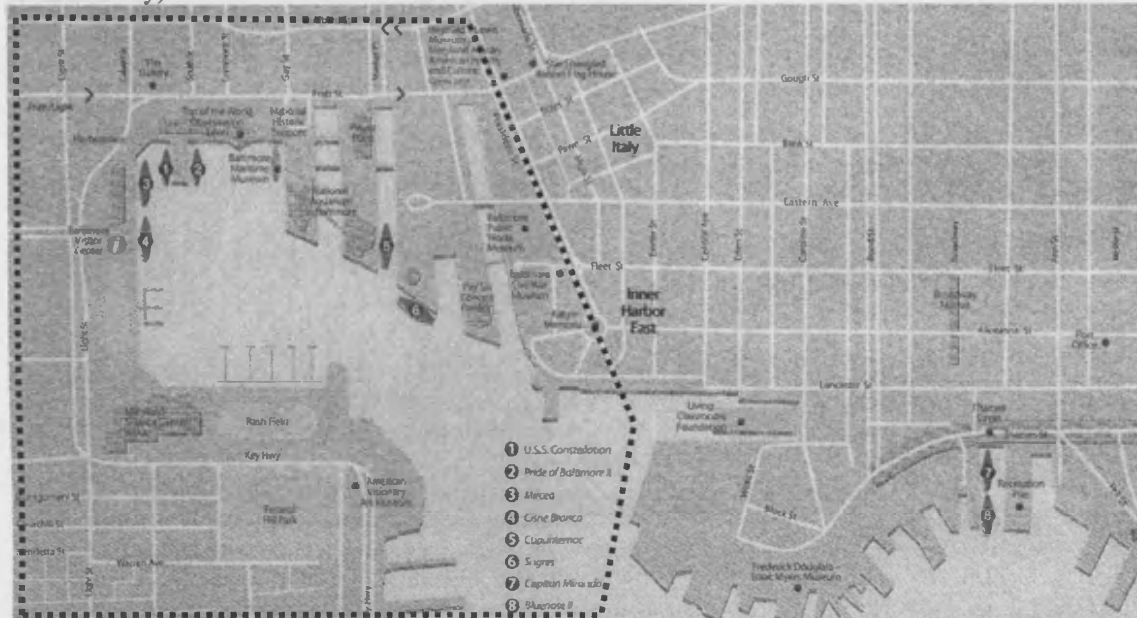
4. the size of the circles represents the impact on the cultural waterfront

Firstly, without doubt, the Fourth July Sailabration, held between 30 June and 4<sup>th</sup> July 2004, was the main international-wide and centrally organised annual event in the case study area. The highlight of this event was the invitation of historic tall ships to the Inner Harbour from around the world to celebrate Independence Day and the 150<sup>th</sup> anniversary of the USS Constellation in 2004. Six Tall Ships moored along the water's edge during that day. Among them, four Tall Ships – the Cisne Branco, Mircea, Sagres and Cuouhitemoc – anchored with the existing Tall Ships – the USS Constellation, Pride of Baltimore II and City Clipper - in the



case study areas. Two other Tall Ships were moored out of the case study area (Figure 6.120). Above all, as the observations demonstrated, opening their cabins and decks to the public gave rise to substantial congregations in front of the Tall Ships. At the same time, they become an important floating visual landmark and animated the whole case study area.

**Figure 6.120:** The location of Tall Ships during the Fourth July Sailabration (dotted line is the area of the case study)



Source: SpinSheet (July 2004, p56)

In addition, as the observations of the 11 sections showed, the installation of these Tall Ships dramatically changed the use patterns of the waterfront, the flow of pedestrians and congregation levels. Furthermore, they enhanced both the image of the cultural waterfront and the perception of the waterfront as historic due to the predominant image of the historic Tall Ships in the waterfront surface realm. The evidence showed that they functioned in several ways at the same time as important cultural facilities (CG I building), floating landmarks, activity nodes and points of interest. Users of the waterfront were engaged by boarding and experiencing the inside and outside of the Tall Ships (Figure 6.121). During the fireworks for the celebration of Independence Day, large numbers of people filled the waterfront to watch the fireworks until 11 pm. The most important 'city-wide and centrally organised outdoor events'<sup>19</sup> such as the Easter Celebration, Waterfront Festival, New Year's Celebration take

<sup>19</sup> Although it was not possible to observe the city-wide events during the observations, the literature review of events found that 203 major events took place in Baltimore City Level in 2004 (Baltimore Area Conventions and Visitors Association, BACVA, 2004). Major citywide events took place in the case study area.

place in the waterfront area rather than in the inland area. The waterfront area is recognised as an important focal and public domain for the city and activity nodes in the city.

**Figure 6.121:** Tall Ships moored at the waterfront promenade and opened their decks to the public



The cultural facilities, especially CG I to V buildings in the case study area, hosted the most successful and world exemplary building-related events and /programmes. Apart from the city-wide and international events, individual cultural facilities in the case study area generated many independent indoor events, providing a crucial foundation for the success of the waterfront. In particular, CG I and III cultural facilities played an important role. Year-round events from the CG I buildings – the Aquarium, the Science Centre, the Maritime Museum, Harbourplace and the Gallery – attracted many people and became important indoor activity nodes. For example, in the case of the Aquarium, year-round educational and leisure events with their original function have actually generated 30 million visitors in their 19 years operation and 100,000 students and teachers visited during 2001 (National Aquarium Media Centre for the press, 2002).

**Figure 6.122: Building-related events and programmes and their influence in the case study area**

<b>Cultural facilities</b>		<b>Major function</b>	<b>Events</b>	<b>Number of visitors</b>
<b>Aquarium</b>		<ul style="list-style-type: none"> <li>▪ Aquatic exhibition</li> <li>▪ Theme exhibition</li> <li>▪ Leisure and entertainment</li> <li>▪ Education (e.g. examining live animals, animal interview)</li> <li>▪ Conservation</li> <li>▪ Preservation of the environment</li> <li>▪ Research for the environment</li> </ul>	Indoor	<b>1,531,540</b> (annual report, 2002)
<b>Maryland Science Centre+Imax (before refurbishment)</b>		<ul style="list-style-type: none"> <li>▪ Exhibition (e.g. outer space)</li> <li>▪ Imax Theatre performance</li> <li>▪ Scientific educational programme</li> </ul>	Indoor	<b>650,000</b> (2001, Press Kit)
<b>USS Costellation</b>		<ul style="list-style-type: none"> <li>▪ Touring inside ship</li> <li>▪ Exhibition</li> <li>▪ Educational programme for children (e.g overnight camping in the ship)</li> </ul>	Indoor	<b>120,000</b> (interview with Director of USS Constellation, 2002)
<b>Maritime Museum</b>	<b>Torsk Submarine</b>	<ul style="list-style-type: none"> <li>▪ Touring inside the ship</li> <li>▪ Exhibition</li> <li>▪ Educational programme for children (e.g overnight camping in the ship)</li> </ul>	Indoor	<b>About 150,000</b> (Interview with director of the Maritime Museum Organisation, 2004)
	<b>Cheasapeake Lightship</b>	<ul style="list-style-type: none"> <li>▪ Touring inside ship</li> <li>▪ Exhibition</li> <li>▪ Educational programme for children (e.g overnight camping in the ship)</li> </ul>	Indoor	
	<b>Seven Foot Knoll Lighthouse</b>	<ul style="list-style-type: none"> <li>▪ Exhibition and educational programme</li> </ul>	Indoor	
<b>Paddling boats</b>		<ul style="list-style-type: none"> <li>▪ Leisure and entertainment facility</li> </ul>	Outdoor	<b>About 58,000</b> (interview with director of Maritime Museum Organisation)
<b>Pier 6 Concert Pavilion</b>			Outdoor	(-)
<b>Public Works Museum</b>		<ul style="list-style-type: none"> <li>▪ Still-operating sewer pumping station</li> <li>▪ Exhibition of public works</li> </ul>	Indoor	<b>About 20,000</b> (interview with Curator of Public Works Museum, 2004)
<b>Power plant</b>			Indoor	(-)
<b>Harbourplace and the Gallery</b>		<ul style="list-style-type: none"> <li>▪ 120 shops</li> <li>▪ 16 restaurants and</li> <li>▪ 40 eateries</li> <li>▪ entertainment</li> </ul>	Indoor & outdoor 200 annual events at amphitheatre	<b>About 10,000,000</b> (2004, Interview with Marketing Director of Harbourplace)

**Source:** Author (2004)

Regular site-specific events and/programmes were identified during the observations, especially along the waterfront promenade. In general, they heavily concentrated on the amphitheatre located between the two Harbourplace Pavilions. Various types of outdoor events included musical performances such as the regular balcony concerts that were held at the two Harbourplace Pavilions (Figure 6.123). The site-specific events took place in important focal points such as the waterfront gateway, and were constant from weekdays to weekends compared to random on-street performances. The number of events increased during weekends, and evenings. Finally, random street events and /programmes were found during the observation survey. They were not site-specific but took place along the waterfront promenade on a very small scale.

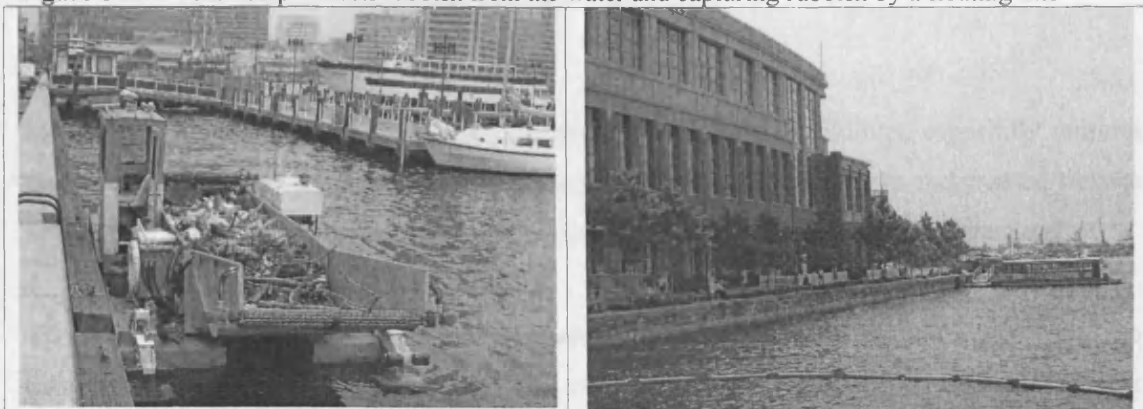
**Figure 6.123:** An example of site-specific events at the Amphitheatre



#### **6.4.1.4 Water quality**

During the observational survey, it was found that water quality is a precondition for a cultural waterfront because dirty smelly water does not draw people. In the case study area, substantial efforts were made to clean up the water. According to observations, garbage ships regularly cleared rubbish from the water surface from morning to late afternoon (Figure 6.124). In addition, to improve the water quality in the case study area, the John Falls Aeration Project in front of the Public Works Museum demonstrated consistent concerns about water quality (Figure 6.124). Despite this effort, floating trash was often seen in the water in the harbour, creating a visually dirty and smelly environment, especially when storms took place in the Chesapeake Bay. After the storms, many users commented that the water quality was poor and dirty in the case study area. It clearly shows the importance of good water quality, and that clean water is an important concern.

**Figure 6.124:** Trash ship collects rubbish from the water and capturing rubbish by a floating line



#### **6.4.1.5 Conclusions of the observational survey**

So far, the observational analysis of users' activity patterns and their interaction with the built environment, events/programs and water was carried out twice for each of 11 sections during weekdays, weekends and event days throughout the day. In addition, the use patterns of the five realms of the waterfront space by users in each section was investigated. On this basis, it was possible to draw out the characteristics of the overall cultural waterfront and users' activity patterns through the combination of the 11 sections (Figure 6.125). It was also possible to see the interrelationship of users' activities with the built environment, water and historical artefacts. Figure 6.125 demonstrates the overall outline of the observations over 11 sections and key characteristics relating users and use patterns. In addition, Figure 6.126 particularly illustrates the relationship between three components of the built environment and the waterfront which were found in the observation.

Interestingly, each of the 11 sections had its own unique characteristics based on influential CG I and II buildings with physical structure highly accessible to the water (see '① major function of each section' in Figure 6.125). As a result, the overall waterfront had various attractions and different types of activity generators that directly influenced users' activity patterns.

Due to the various types of function and people/activity-oriented spatial structures, the overall case study area had a constant and high level flow of different types of users – locals, tourists and visitors - that sustained waterfront activity throughout the day (see '④ pedestrian flow' in Figure 6.125). In addition, the observations found that most of the pedestrian flow and congregation took place and was heavily concentrated along the water's edge and in the foreground waterfront realm in all 11 sections. However, there was a distinctive physical disintegration between the background waterfront realm and the foreground waterfront realms because of heavy traffic between them. Despite the physical barrier, the background waterfront realm provided hotels, offices and parking spaces that helped to sustain the waterfront,

Most sections were characterised and supported by influential buildings, especially cultural grade I to V buildings, which attracted hundreds and thousands of visitors and created various spin-off activity patterns beyond the original function of the buildings on the waterfront.

The most distinctive factor of the overall sections that influenced people's activities, use patterns and level of congregation was the existence of the 'waterscape' environment that

created a tremendous potential for cultural activities and uses (see ‘©the number of floating objects’ in Figure 6.125). It is no exaggeration that the success of the waterfront has much to do with the variety of functions found in the waterscape environment. The waterscape environment was the site of many historic artefacts that had great attraction for users. Simultaneously, it created a robust water’s edge that attracted people (see ‘Ⓓusage level of water’s edge’ in Figure 6.125). The transformation of the spatial use and activity patterns demonstrated the importance of the waterscape. In addition, the waterscape played a significant role in creating a robust water’s edge realm that became the transition zone between the land and the water, using ships, boats, and the marina to create interest and attract users (see ‘Ⓐ functions of water’s edge’ in Figure 6.125). Finally, as Figure 6.126 demonstrates, the three elements of the built environment – buildings, open space, and historic artefacts - with a people/activity-oriented spatial structure - gave high visual, physical and psychological accessibility to the water. This strong sense of the waterfront was directly related to the quality of the waterfront space as a public domain. At the same time, it provided an important foundation for cultural uses and activities.

In terms of users’ activity patterns of the relationship between the built environment, the water and events and programmes, the result of the observational analysis clearly demonstrates three important findings with regard to cultural activities and uses. The user’s activity patterns were strong related to the physical built environment (form and structure), functions of CG I to VII buildings, and events/programmes in the formation of cultural activities and uses

To begin with, the form, structure and function of the three components of the built environment - buildings, open space and historical artefacts - were strongly related to the generation of various activity patterns and the potential cultural uses and activities (Figure 1.126). In terms of the form and structure of the built environment, especially open space, such as the waterfront promenade and parks, these greatly influenced the flow of people, and became the main activity nodes. For instance, the continuous and ample width of the waterfront promenade became an important means to accommodate the heavy pedestrian flows, various activities and events, and connect 25 identified highly visual physical access routes into the case study area (Figure 6.39 and 6. 40). In addition, low-rise building types and various forms of architectural design also enhanced the sense of the cultural waterfront.

Regarding the function of the built environment which is directly related to the function of the seven building types, each section had cultural grade I to IV buildings that played an important role in generating activities (Figure 1.126).



Figure 6.125: The overall outline of 11 observational sections

Sections		Federal Hill	Science Centre	Visitor Information Centre	Harbourplace Light Street Pavilion	Amphitheatre	Harbourplace Pratt Street Pavilion	Aquarium	Power Plant	Pier 5 and Pier 6	Public Works Museum
④ pedestrian flow											
⑤ congregation level (stationary activities) R- regular VR - very regular C - constant VC - very constant											
② users	Morning	Local People	Family + Children + Tourists	Tourist + Family + Children + Baseball onlookers	Tourist + Family + Children + office workers	Tourist + Family + Children + office workers	Tourist + Family + Children + office workers	Tourist + Family + Children + office workers + Local people	Tourist + Family + Children + office workers + Local people	Tourist + Office workers	Tourist + Business people + children
	Afternoon	Local people + Tourist	Family + Children + Tourists	Tourist + Family + Children + Baseball onlookers	Tourist + Family + Children + office workers	Tourist + Family + Children + office workers	Tourist + Family + Children + office workers	Tourist + Family + Children + office workers + Local people	Tourist + Family + Children + office workers + Local people	Tourist + Office workers	Tourist + Business + children
	evening	Local People	Local people	Tourist + Family + Children + Baseball onlookers + Local people	Tourist + Family + Children + office workers + Local people	Tourist + Family + Children + office workers + Local people	Tourist + Family + Children + office workers + Local people	Tourist + Family + Children + office workers + Local people	Tourist + Family + office workers + Local people	Tourist + Office workers + Local people	Business people + Local people
① Major function of each section		Historical Waterfront park	Science Centre educational	Visitor Centre & Cruise	Shopping eating & entertainment	Outdoor events and performance	Shopping eating & entertainment	Aquarium educational	Entertainment eating	Hospitality and entertainment	Hospitality, educational and residential
Five realms of the waterfront & built environment	Inland	Residential area	Office Residential	PSINet Stadium Camden Yard	Oriole Stadium Camden Yard Convention Centre	Office building Parking building USF&G building	Office building Parking lot Renaissance Hotel The Gallery	Holocaust Memorial Parking building Office building	Office building Holocaust Building	Port Discovery (kid-power museum)	Port Discovery Office bldg.
	Background	Residential Federal Hill Key Highway	Lutheran Housing	Residential Parking lot Inner Harbour Court Hotel	Office building Parking building Hyatt Hotel Skywalk	McKeldin Square Meyerhoff fountain Light and Pratt St.	Pratt Street Skywalk	Skywalk Pratt Street Stop for Vehicles Ticket Office	Parking building Office building Pratt St.	Parking Building Market place building Pratt Street	Office bldg. Pratt St.
	Foreground	American Visionary Mu. Harry D. Kaufman Pavilion Pride of Baltimore Rash Field Rusty Scrapper Restaurant	Light Street Green space MSC Children open space	Parking lot Visitor Centre Green Open space Ticket office	Skywalk Harbourplace (Light St.)	Buffer zone Amphitheatre	Harbourplace (Pratt St.)	Green open space Aquarium Extension	Power Plant Office building (?)	Columbus Centre Parking building Park lot Roundabout for Pier 5 Hotel	Scarlett Place Public Work Museum Harriet Hotel
	Water's edge	Promenade	Promenade Seaport taxi Landing	Promenade	Promenade	Promenade Water taxi landing Seaport taxi Landing	Promenade Pier 1 square Public art object Ticket Office	Promenade Pedestrian Bridge Aquarium	Promenade Pedestrian Bridge Mammal Pavilion Pavilion Square	Pier 5 Hotel Pier 6 Concert Hall Green open space Promenade Pedestrian bridge	Resarurant Promenade
	Water Surface	Marina Boats	Seaport Taxi	Finger Pier Boats Cruise (Lady Baltimore, Bay Lady, Prince Charming) City Clipper Tall Ship-Ciscene Branco	Boat stop Boats Tall Ship - Mircea	Water taxi Seaport taxi USS Constellation	Paddling boat USS Constellation Boat stop Tall Ship-Pride of Baltimore	Torik Submarine Cheasapeake lightship Electric Boat Rental	Floating deck (ESPN) Floating Deck (Hard Rock) Boat stop	Boat stop Water taxi stop Coast Guard Taney Duchess of Pintail Cruise Lady Maryland Mildred Belle Sigsbee Tall Ship - Sagres.	Marina Water taxi stop
a) Functions of water's edge		Enjoying waterscape + dedicated to marina	Enjoying waterscape + Water taxi stop	Enjoying waterscape + Cruise service + private boat stop + Finger pier	Enjoying waterscape + Private boat stop + Tall Ship	Enjoying waterscape + major water transportation terminal	Enjoying waterscape Entertainment (paddling boat) + Historical water's edge (USS Constellation) + Tall ship	Enjoying waterscape + Private boat + Entertainment + maritime museum + water's edge	Enjoying waterscape + Private boat	Enjoying waterscape + cruise + Maritime museum + private boat stop + living foundation programme + water taxi	Enjoying waterscape + water taxi
b) usage level of water's edge											
c) the number of floating objects		All day Very High Very regular	afternoon Very low Very irregular	afternoon Very High regular	afternoon High Irregular	All day Very High very Regular	All day Tremendously high Tremendously regular	All day Very High Regular	High regular	All day Very High Very regular	All day Very high Very regular



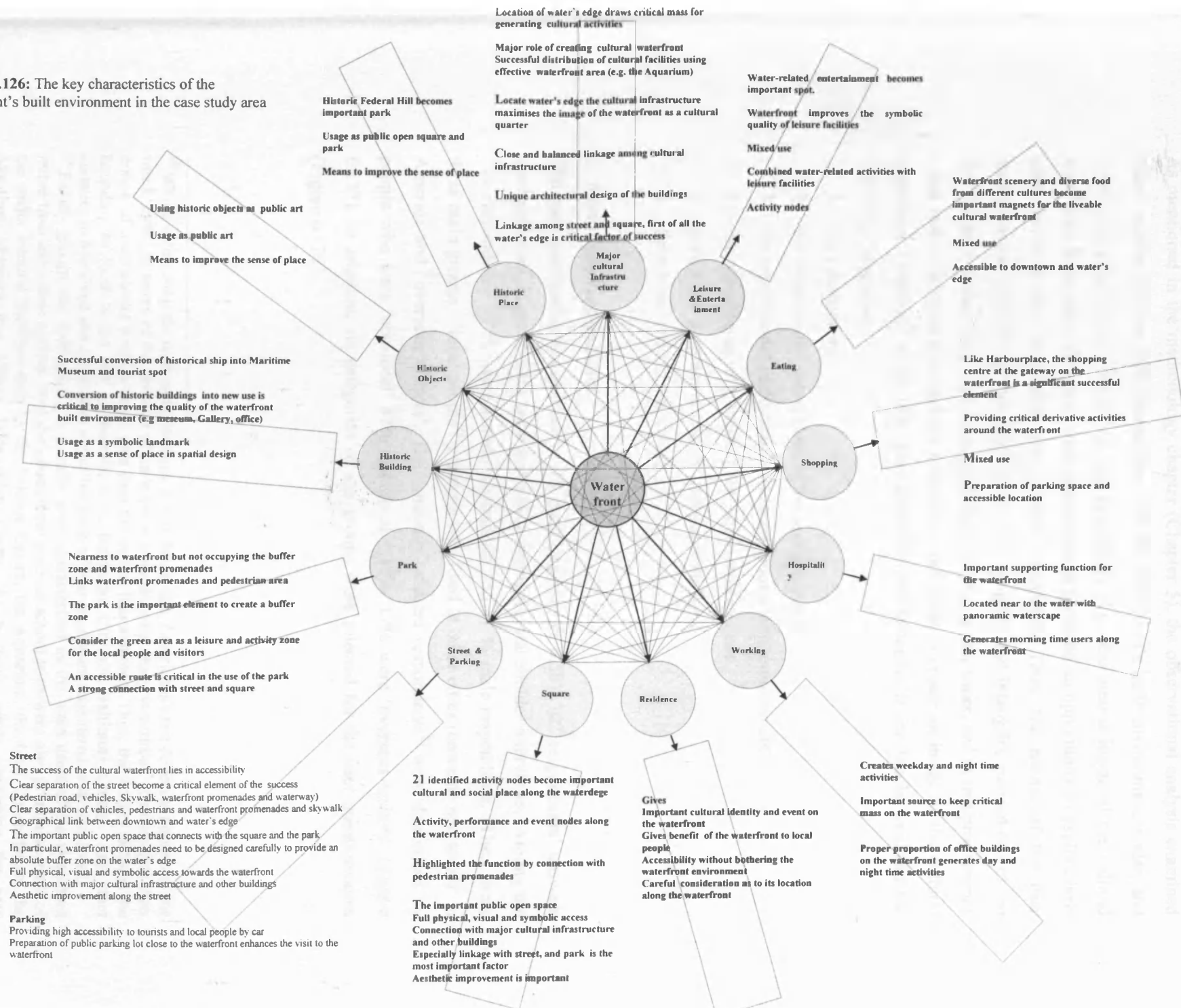
For example, the Aquarium annually attracted about 1.5 million visitors (2002, Annual Report); the Science Centre attracted 650,000 (2001); the Maritime Museum attracted 150,000 (2004, Interview with director of the Maritime Museum Organisation); and 9.8 million visitors came to Harbourplace each year (Figure 6.122). A significant level of activities was generated from major cultural facilities, and their indoor and outdoor events and programmes directly impacted on sustaining people on the waterfront and in the diverse activity patterns.

Furthermore, there were many floating objects across all of the sections, such as historic tall ships, modern cruise ships, water taxis, paddling boats and private boats and the marina. The functions of the waterscape environment and its programmes, also provided users with a wide range of water-related activities. For instance, the historic floating ships used for the Maritime Museum (the USS Constellation, Submarine Torsk, Chesapeake Light Ship, Seven Foot Knoll Lighthouse, and Coast Guard Taney) which extended users' activity patterns to the water surface realm. At the same time, it enhanced the high sense of the waterfront. In many respects, these floating objects played an important role in generating a sense of the cultural waterfront because they functioned as an important CG I building, visual landmark and floating activity nodes. The transformation of use patterns in the case study area clearly demonstrated the impact of floating objects in the waterscape environment when the historic Tall Ships moored along the water's edge during event days (Figure 6.69, 6.71, 6.90, 6.100 and 6.121).

Regarding outdoor and indoor events and programmes, five different categories (Figure 6.119), influenced users' activity patterns. Year-round and organised indoor events and programmes in major cultural facilities, such as the Aquarium and Harbourplace, drew various types of users and different age groups throughout the day. Outdoor events, especially the tall ships exhibition opening their decks and cabins to the public during event days, substantially influenced the use pattern and congregation level of the overall waterfront space. In short, the survey clearly demonstrated that events and programmes, as contents in the form, structure, and functions of the built environment, are equally important at creating cultural ambience.

Finally, the level of the 'sense of the waterfront' and the existence of the waterscape environment was directly related to the creation of diverse cultural activities. When the physical structure between the built environment and the water reinforces a higher sense of the waterfront and promotes interactivity between the land and the water in terms of physical, visual and psychological accessibility, this creates a foundation for success. According to observations, the greater 'the sense of the waterfront' and the 'waterscape environment', the more popular cultural uses and activities seemed to be.

**Figure 6.126:** The key characteristics of the waterfront's built environment in the case study area



### 6.4.2 User questionnaires

As mentioned in the methodology chapter (Chapter 5), the observational analysis examined users' activity patterns and interactions with the waterfront's built environment, water, and events and programmes, but it was not possible to elicit the mental image of the cultural waterfront from users. However, user questionnaires provided an opportunity to explore how users perceive and experience the cultural waterfront. Thus, the results of the user questionnaires analysis provide clues about how tangible and intangible perceptions of the five factors – urban waterfront form, built environment, users, water, and events/programmes - that make the cultural waterfront eventually lead users to create an image of the cultural waterfront. Questions in the user questionnaires (see Appendix B for details) explored the following categories:

1. the respondents
2. the respondents' perceptions of the case study area
3. the respondents' preferences as to waterfront's built environment
4. their experience of the waterfront's built environment
5. events and programmes on the cultural waterfront
6. their experience of the water

#### 1) About the respondents

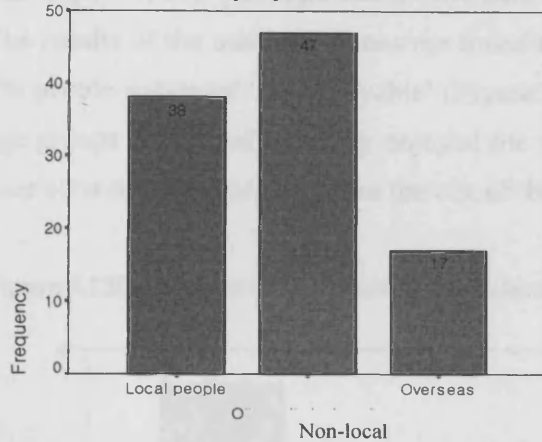
The user questionnaires consisted of 20 questions (Figure 6.59). 102 respondents' answers were collected. Eight of them were undertaken during the stakeholder interviews. Among the 102 respondents, 59 % were female respondents and 41 % male respondents. There were three main groups - 'local people'<sup>20</sup>, 'people who lived in other cities (onwards non-local)' in America and 'overseas visitors'. The randomly selected respondents<sup>21</sup> were dominated by people who were 'non-local' 47% and 'local' 37%. 17% were 'overseas visitors' (Figure 6.127). In addition, six categories of age groups were selected for the user questionnaires (Figure 6.128).

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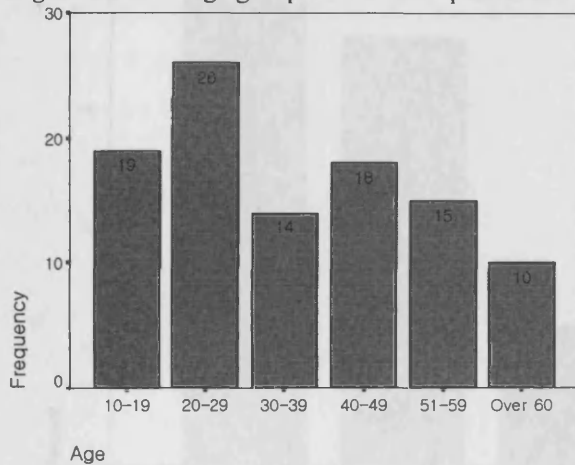
<sup>20</sup> Whilst conducting the user questionnaires, it was found that Americans have different notions of the word 'local' in terms of the distance of their home from the case study waterfront. It seems that their notion of local covers a much larger area than the author had assumed. Thus, the Author defined the boundary of local in the user questionnaires as Baltimore City and Baltimore County. Any other counties in Maryland and other cities out of the State of Maryland were considered to be non-local.

<sup>21</sup> Family groups and individual group visits were characterised as the main users of the waterfront rather than individual visitors. And the educational purpose school trips were also prominent users of the major cultural facilities such as the Science Centre, the Aquarium, the USS Constellation, the Maritime Museum and Visitor Information Centre. As a result, whilst conducting the user questionnaires, it was possible to collect various informal data from the family of respondents.

**Figure 6.127** Where people came from

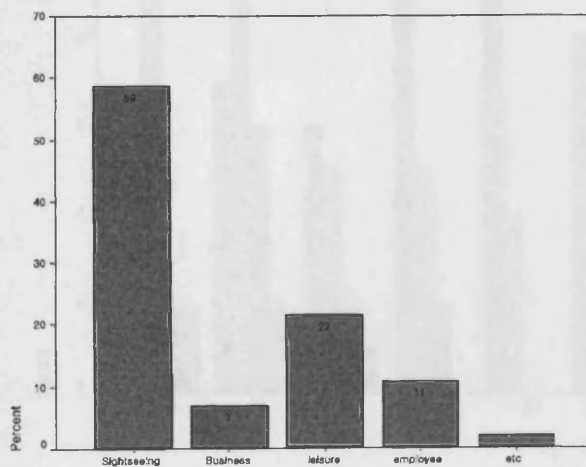


**Figure 6.128:** Age group for the user questionnaires



As Figure 6.129 shows, 81% of respondents came to the waterfront for 'sightseeing and leisure activities'; 7% of respondents came for business activities; and 11% were employees in the case study area. Among them some people visited the Inner Harbour before and after baseball matches at Camden Yard.

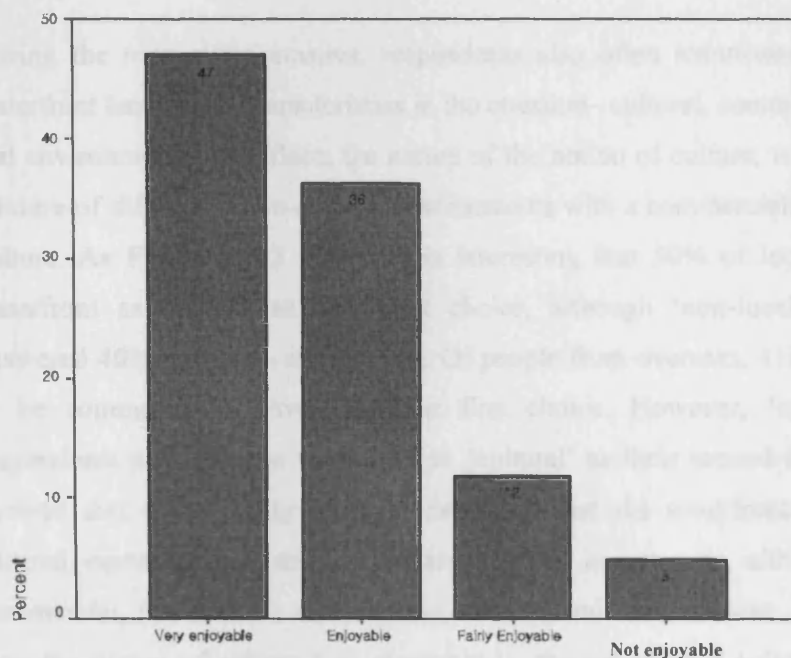
**Figure 6.129:** Purpose of visit to the case study area



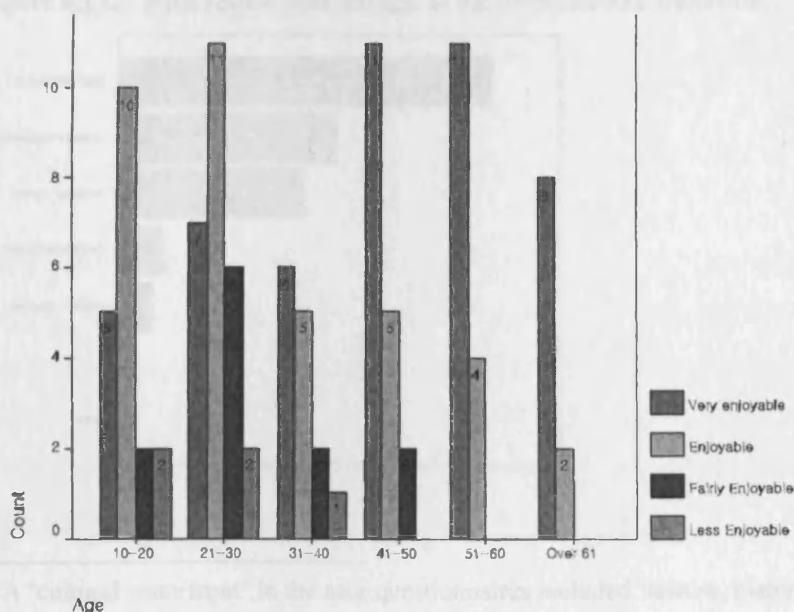
## 2) Respondents' perceptions of the case study area

The results of the user questionnaires found that 95% of respondents enjoyed the waterfront. 5% people answered 'not enjoyable' (Figure 6.130). In addition, on average, all six different age groups responded that they enjoyed the waterfront (Figure 6.131). Interestingly, people over 40 were more satisfied than the rest of the respondents.

**Figure 6.130:** How would you describe the Baltimore Inner Harbour waterfront?



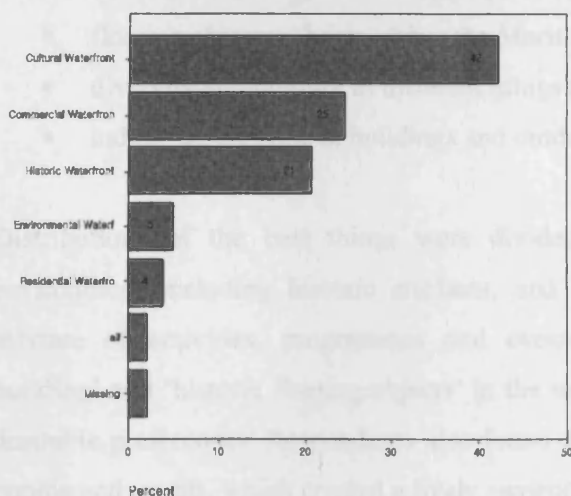
**Figure 6.131:** How respondents described the Baltimore Inner Harbour waterfront depending on age group



Among the 102 respondents, 42% were people who said that the Inner Harbour was a ‘cultural waterfront’<sup>22</sup>, and 25% saw the Inner Harbour as a ‘commercial waterfront’. 21% people thought the waterfront was a ‘historical waterfront’. 88% of the respondents responded that the waterfront was cultural, commercial and historical (Figure 6.132). Those people who chose ‘cultural waterfront’ as the first choice selected ‘commercial’ and ‘historic’ as second and third choices. In addition, those people who chose ‘commercial’ and ‘historic’ as the first choice selected ‘cultural waterfront’ as their second choice.

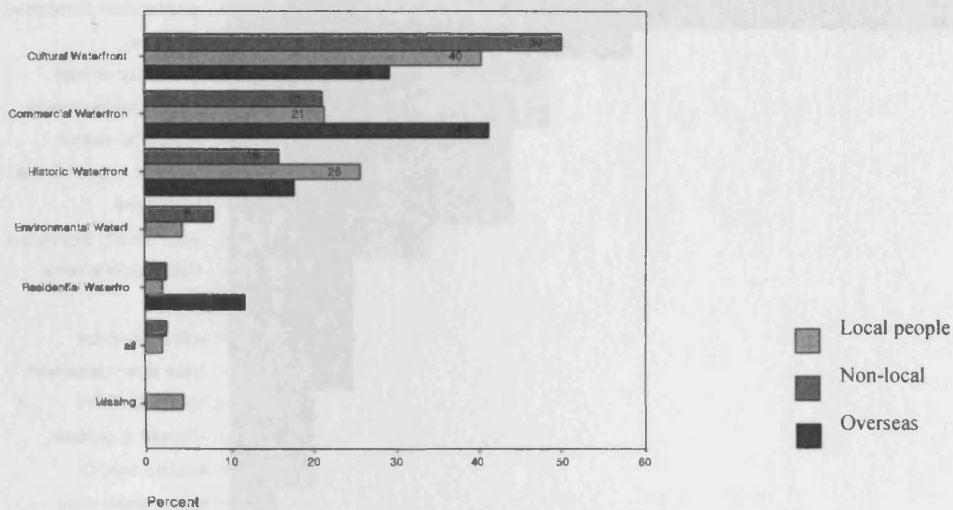
During the user questionnaires, respondents also often mentioned that the Inner Harbour waterfront has all the characteristics in the question– cultural, commercial, historic, residential, and environmental. It reflects the nature of the notion of culture, which is characterised by a mixture of different socio-cultural environments with a commercially embedded post-modern culture. As Figure 6.133 shows, it is interesting that 50% of local people considered the waterfront as cultural as their first choice, although ‘non-local’ and ‘overseas’ people answered 40% and 20% respectively. Of people from overseas, 41% believed the waterfront to be commercially driven as their first choice. However, ‘non-local’ and ‘overseas’ respondents also saw the waterfront as ‘cultural’ as their second choice. Overall, the result showed that the majority of respondents felt that the waterfront exhibited a mixture of cultural, commercial, historic, entertainment and leisure uses, although they chose cultural, commercial, and historic as their first, second, and third choices. Because of the confusion over the notion of culture (see chapter 2.1), the notion of a cultural waterfront reflected a combination of historical, commercial, leisure/entertainment, and environmental factors in respondents’ minds.

**Figure 6.132:** What respondents thought of the Inner Harbour waterfront



<sup>22</sup> A ‘cultural waterfront’ in the user questionnaires included ‘leisure, historic and entertainment’ traits.

**Figure 6.133:** What 'local', 'non-local', and 'overseas' respondents thought of the Inner Harbour waterfront



### 3) Respondents' preferences as to the waterfront's built environment

The respondents' preferences as to the waterfront's built environment (see Figure 4.76) were examined using two questions: 1) 'What are the best/worst things on the waterfront'; and 2) 'What is the most impressive physical things on the waterfront?'. The former was an open question; the latter gave a multiple selection with 16 choices.

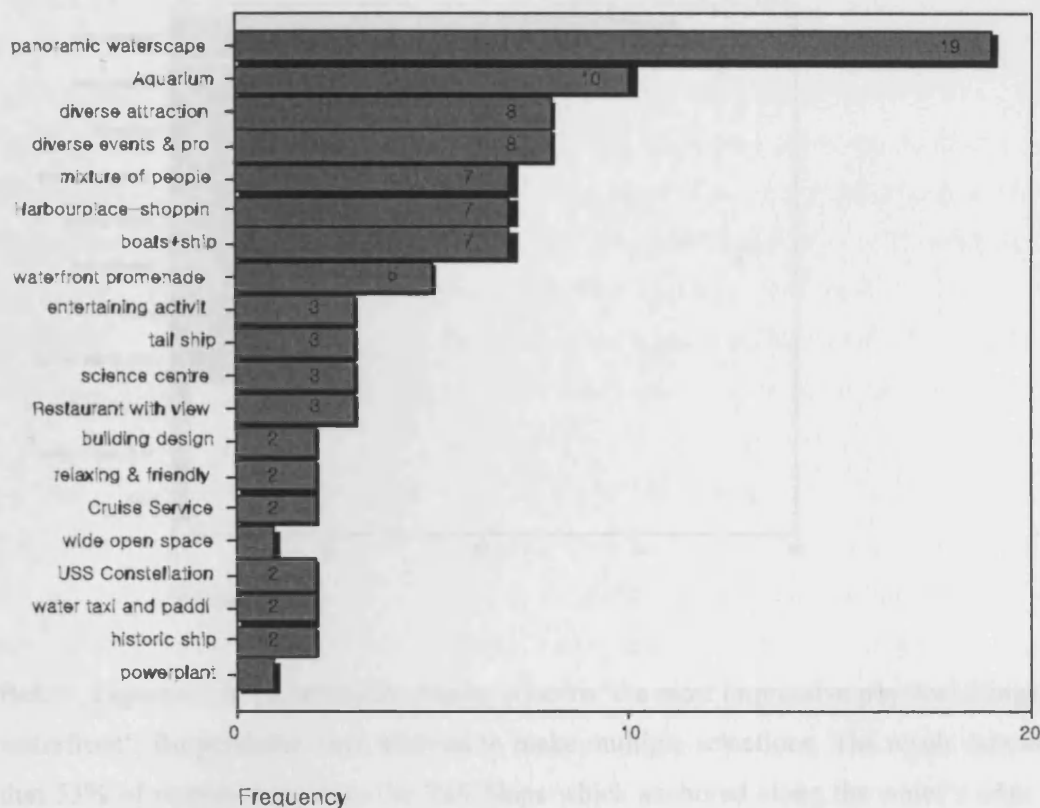
In terms of the question 'What are the best/worst things on the waterfront?', preferences varied. 20 different answers were found from the open question (Figure 6.134). They were categorised under five main headings in the following order:

- The waterfront promenade and open space with waterscape (26.5%)
- landmark building and its design (25.5%)
- floating objects – boats, ships, the Maritime Museum and tall ship (17.8%)
- diversity and mixture of different things (14.7%)
- indoor programme in buildings and outdoor events (10.7%)

Distributions of the best things were divided into two categories – the tangible built environment including historic artefacts; and intangible aspects such as diversity and a mixture of activities, programmes and events. 'The waterfront promenade', 'landmark building' and 'historic floating objects' in the water surface realm were found to be the most desirable preferences. Respondents also found that the waterfront had a mixture of different people and events, which created a lively environment.



**Figure 6.134: What are the best things on the waterfront?**

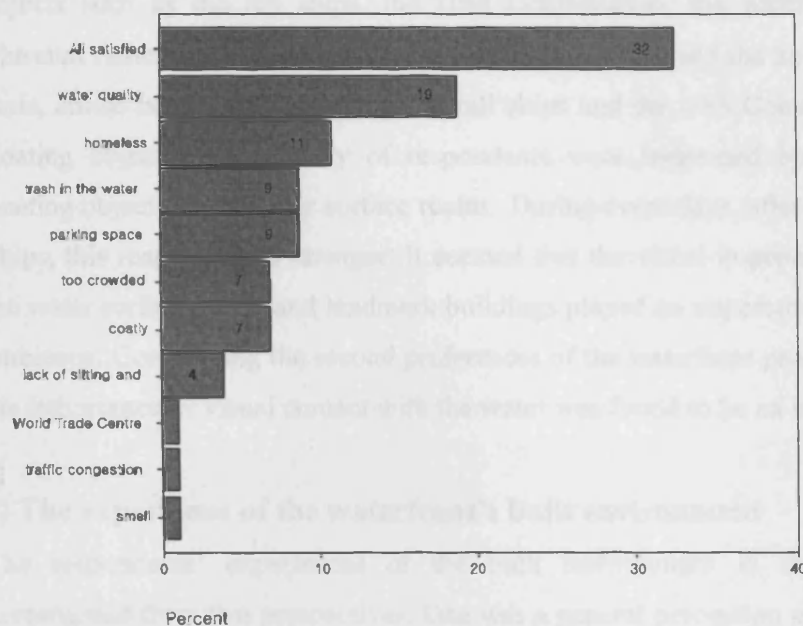


In the case of the worst things, 10 different types of data were commonly found from respondents (Figure 6.135). They were categorised into the seven items below:

- satisfied with the environment (32%)
- dissatisfied due to water pollution (28%) (e.g. trash, smell and water quality)
- disliked homeless people on the waterfront (11%)
- problem with parking and heavy traffic (10%)
- over-crowded (7%)
- costly (7%)
- lack of seating and signage (4%)

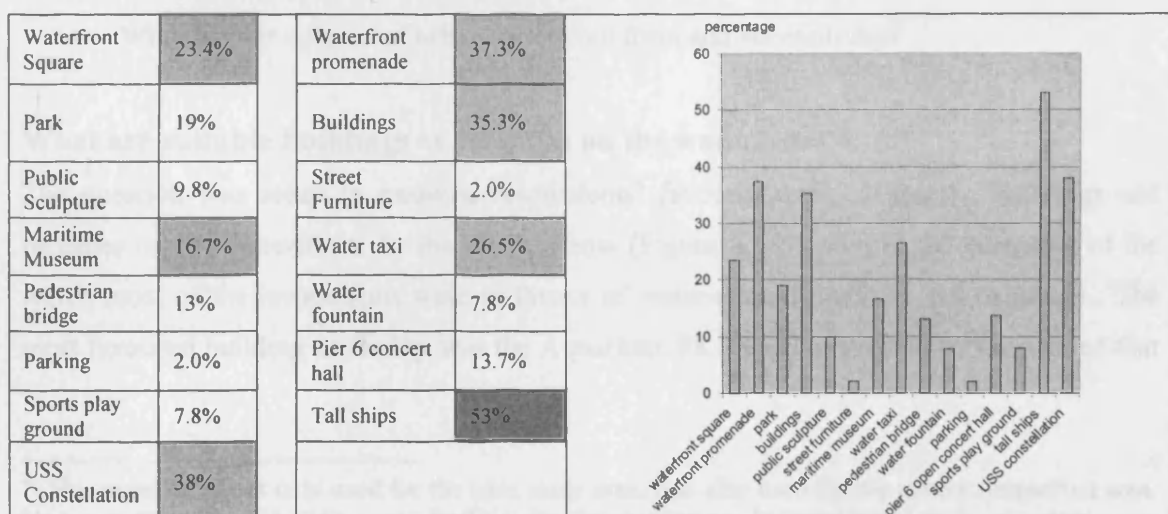
In contrast to the best things, the worst things were mainly concerned with 'water pollution' although cleaning work was undertaken every day from morning to evening. There was a strong opinion about the water pollution present whilst conducting the user questionnaires. The second concern related to homeless people on the waterfront and problems with heavy traffic. 32% of the respondents left this question blank because they were satisfied with the waterfront.

**Figure 6.135: The worst things on the waterfront**



Below, Figure 6.136 illustrates the results concern 'the most impressive physical things on the waterfront'. Respondents were allowed to make multiple selections. The result demonstrates that 53% of respondents chose the Tall Ships which anchored along the water's edge during event days, and 38% of the respondents chose the USS Constellation. If the USS Constellation is also considered to be a tall ship, 91% of respondents chose floating tall ships on the water surface realm as the most impressive thing. It clearly shows the impact of historic floating objects in creating the waterfront. 37.3% and 35.3% of the respondents chose 'the waterfront promenade' and the 'diverse type of buildings' respectively, as their third and fourth most impressive things. The Maritime Museum scored 16.7%.

**Figure 6.136: The most impressive physical things on the waterfront**



**Note:** The questions were multiple choices from 102 respondents

Interestingly, during their visit, most respondents were particularly impressed by the floating objects such as the tall ships, the USS Constellation, the water taxis and the Maritime Museum rather than the buildings such as the Aquarium and the Science Centre. When water taxis, cruise boats, maritime museum, tall ships and the USS Constellation were included in floating objects, the majority of respondents were impressed by both static and moving floating objects in the water surface realm. During event days, after the installation of the Tall Ships, this response was stronger. It seemed that the visual impression of floating objects on the water surface realm and landmark buildings played an important role in creating a cultural ambience. Considering the second preferences of the waterfront promenade from respondents, the importance of visual contact with the water was found to be an important factor.

#### **4) The experience of the waterfront's built environment**

The respondents' experiences of the built environment in the case study area were investigated from two perspectives. One was a general perception of the built environment on the waterfront. The other was how the three components of the built environment – the seven buildings types (CG I to VII), open space, and historic artefacts influenced the generation of the cultural waterfront. To do this, the seven questions below were asked (see Appendix B for details):

- what are suitable buildings and facilities for the waterfront?
- which function of the buildings are the most useful to generate cultural uses and activities on waterfronts?
- What is a suitable physical layout between the buildings and the water?
- what are your favourite buildings or attractions on the waterfront?
- what buildings add to the quality of the waterfront?
- do you think that the unique architectural form and design of buildings has influenced the sense of the cultural waterfront?
- What is your opinion of urban waterfront form and accessibility?

#### **What are suitable buildings or facilities on the waterfront<sup>23</sup>**

The question was asked to examine respondents' favourite type of specific buildings and facilities on the waterfront. As the results show (Figure 6.137), due to the existence of the water, most of the respondents were in favour of water-related facilities and buildings. The most favoured building or facility was the Aquarium. 98.1% of the respondents answered that

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<sup>23</sup> This question is not only used for the case study area. It is also used for the general waterfront area. However, the items of buildings and facilities for the question are designed based on the case study area. When conducting the user questionnaires, this was clarified beforehand.

'the Aquarium' is necessary for the waterfront.<sup>24</sup> 97.1% of respondents chose the Maritime Museum as their second choice. 96.2% of the respondents chose 'restaurants and cafes' as their third choice. The fourth choice was 'water transportation'(95.1%). Except for 'industrial' buildings and facilities, most respondents saw the seven building types (CG I to VII) as suitable to the waterfront. In general, most respondents thought that water-related facilities and buildings – water taxi, marina, the maritime museum, and paddling boats – as important things on waterfront. In addition, the majority of respondents liked a mixture of buildings on the waterfront.

**Figure 6.137: Suitable buildings and facilities on the waterfront**

Buildings and facilities	Necessary			Unnecessary		Missing
	Very necessary	Fairly necessary	Necessary	Less necessary	Not necessary	
Restaurant & cafe	77.5%	16.7%	2.0%	1.0%	1.0%	2.0%
	96.2%			2.0%		
Transportation (e.g. terminal, water taxi)	74.5%	18.6%	2.0%	none	2.9%	2.0%
	95.1%			2.9%		
Marina	72.5%	12.7%	6.9%	1.0%	2.0%	4.9%
	92.1%			3.0%		
Maritime Museum (e.g. submarine, tall ship)	65.7%	26.5%	4.9%			2.9%
	97.1%			0%		
Aquarium	64.7%	26.5%	6.9%	1.0%		1.0%
	98.1%			1.0%		
Leisure & Entertainment facilities (e.g. paddling boat)	62.7%	24.5%	6.9%	1.0%	2.0%	2.9%
	94.1%			3.0%		
Hotel	55.9%	20.6%	14.9%	4.9%	1.0%	2.9%
	91.4%			2.9%		
Education centre (e.g. science centre)	50.0%	26.5%	13.7%	1.0%	2.0%	6.9%
	90.2%			3.0%		
Museum	46.1%	28.4%	17.6%	4.9%		
	92.1%			4.9%		
Retail shops	42.2%	24.5%	18.6%	7.8%	2.9%	3.9%
	85.3%			10.7%		
Exhibition & Conference centre	37.3%	23.5%	20.6%	6.9%	8.8%	2.9%
	81.4%			15.7%		
Shopping Centre & Department store	37.3%	23.5%	20.6%	6.9%	8.8%	2.9%
	81.4%			15.7%		
Open theatre	32.4%	27.5%	23.5%	7.8%	5.9%	2.9%
	83.4%			13.7%		
Sports centre	20.6%	17.6%	25.5%	22.5%	11.8%	2.0%
	63.7%			34.3%		
Theatre	20.6%	25.5%	27.5%	13.7%	9.8%	2.9%
	73.6%			23.5%		
Office building	12.7%	20.6%	29.4%	18.6%	16.7%	2.0%
	62.7%			35.3%		
Cinema	11.8%	14.7%	32.4%	18.6%	19.6%	2.9%
	58.9%			38.2%		
Residential house	10.8%	14.7%	29.4%	21.6%	20.6%	2.9%
	54.9%			42.2%		
Industrial facilities (e.g. factory)	6.9%	6.9%	22.5%	12.7%	48.0%	2.9%
	36.3%			60.7%		

<sup>24</sup> The answer was designed for users to rate out of five (1:very necessary, 5:not necessary). The result of each rating and the total of positive answers (from rate 1 to 3) in Figure 6.137 is different. The total percentage of positive answers, including 'very necessary', 'fairly necessary', and 'necessary' was used.

### Which function of buildings are the most useful to generate cultural uses and activities on the waterfront?

The question was asked to explore the importance of building types in generating a cultural ambience. Diverse mixtures of buildings were categorised into seven types (CG I to VII buildings) in the case study area on the basis of the findings from chapter 4 (Figure 4.75). The results of the questions in Figure 6.138 showed the importance of each building type in generating cultural uses and activities. Respondents answered that 'major cultural infrastructure' was the most influential building to create cultural use and activities on the waterfront. It reflected the strong influence of major cultural facilities – the Aquarium, the Science Centre, the Maritime Museum in the case study area.

**Figure 6.138:** The function of buildings most useful to generating cultural uses and activities on waterfronts

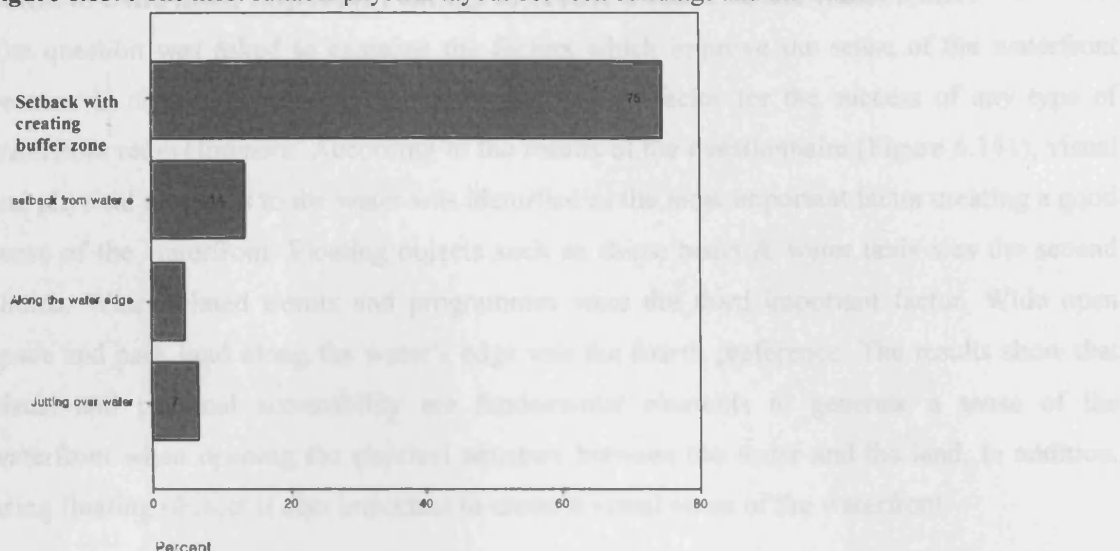
Building types	Grade I	Grade II	Grade III	Grade IV	Grade V	Grade VI	Grade VII
<b>Major cultural infrastructure</b> (e.g. Aquarium, Maritime Museum)	75.5% (76.2)	6.9% (7.0)	3.9% (4.0)	5.9%	2.9%	2.9%	1.0%
<b>Leisure &amp; Entertainment</b>	10.8% (10.9)	37.3% (38.0)	19.6% (20.0)	11.8%	10.8%	3.9%	2.9%
<b>Eating</b> (e.g. restaurants & cafes)	6.9% (6.9)	29.4% (30.0)	40.2% (41.0)	12.7%	4.9%	2.0%	2.0%
<b>Shopping</b> (e.g. retail shops)	2.9% (3.0)	10.8% (11.0)	12.7% (13.0)	38.2%	24.5%	6.9%	2.0%
<b>Hospitality</b> (e.g. hotel)	2.9% (3.0)	7.8% (8.0)	10.8% (11.0)	21.6% (22.0)	26.5% (27.6)	14.1% (15.3)	11.8% (12.2)
<b>Working</b> (e.g. Office)	0%	3.9% (4.0)	8.8% (9.0)	3.9% (4.0)	15.7% (16.3)	35.3% (36.7)	30.4% (30.6)
<b>Residential</b>	0%	2.0% (2.0)	2.0% (2.0)	2.9% (3.0)	10.8% (11.2)	35.3% (37.8)	41.2% (42.9)
<b>Missing</b>	1.0%	2.0%	2.0%	2.9%	3.9%	3.9%	3.9%

**Note:** Grade I is the most useful and Grade VII the least useful for generating culture use and activities on the waterfront. The percentage in brackets represents a valid percent that ignores the missing answers from respondent.

### Suitable physical layout between the buildings and the water

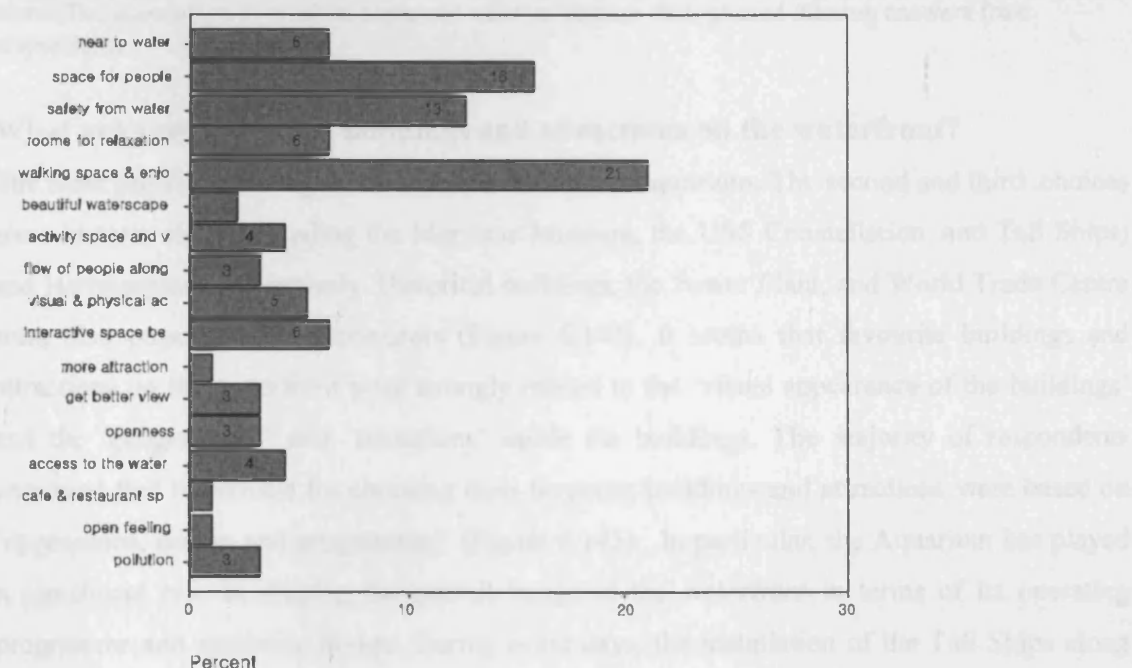
In terms of physical layout between buildings and the water, 75% of the respondents thought that the waterfront must provide 'a buffer zone' between the water and the buildings (Figure 6.139). 14% of respondents thought that the buildings must be set back from the water. Consequently, 89% of respondents considered that the waterfront had to provide space between the water and the buildings.

**Figure 6.139:** The most suitable physical layout between buildings and the water



In general, users provided several reasons why space between the water and the buildings is important (Figure 6.140). 15 of the 17 reason (84% of the respondents) were strongly related to the public use of the waterfront, which is characterised by ‘openness’, ‘the sense of the waterfront’, ‘waterscape’, ‘people-friendly environment’, and ‘ample activity space. Safety, 13%, was also a concern for respondents<sup>25</sup>. The results (Figure 6.140) show that visual physical, and psychological accessibility were key reasons for the provision of a buffer zone between the water and buildings.

**Figure 6.140:** Reason for choice of most suitable physical layout between buildings and the water





### What are the most important things to create a sense of the waterfront?

The question was asked to examine the factors which improve the sense of the waterfront because in chapter 4 this was found to be a critical factor for the success of any type of waterfront redevelopment. According to the results of the questionnaire (Figure 6.141), visual and physical openness to the water was identified as the most important factor creating a good sense of the waterfront. Floating objects such as ships, boats & water taxis was the second choice. Water-related events and programmes were the third important factor. Wide open space and park land along the water's edge was the fourth preference. The results show that visual and physical accessibility are fundamental elements to generate a sense of the waterfront when opening the physical structure between the water and the land. In addition, using floating objects is also important to create a visual sense of the waterfront.

**Figure 6.141:** The most important things to create 'a sense of the waterfront'

	Grade I	Grade II	Grade III	Grade IV	Grade V	Grade VI	Grade VII
Visual & physical openness to the water	62.7% (64.0)	8.8% (9.5)	6.9% (9.6)	1.0% (2.2)	2.0% (5.1)	1.0% (2.9)	2.0% (5.7)
Ships, boats & water taxis	22.5% (23.0)	38.2% (41.1)	3.9% (5.5)	3.9% (8.9)	2.9% (7.7)	2.9% (8.6)	2.0% (5.7)
Water-related events & programmes	2.9% (3.0)	11.8% (12.6)	13.7% (19.2)	8.8% (20.0)	4.9% (12.8)	3.9% (11.4)	3.9% (11.4)
Provision of promenades along the water's edge	*	10.8% (11.6)	11.8% (16.4)	8.8% (20.0)	4.9% (12.8)	8.8% (25.7)	4.9% (14.3)
Maritime Museum	2.0% (2.0)	4.9% (5.3)	9.8% (13.7)	5.9% (13.3)	11.8% (30.8)	5.9% (17.1)	3.9% (11.4)
Wide open space & parks along the water's edge	5.9% (6.0)	11.8% (12.6)	15.7% (21.9)	9.8% (22.2)	7.8% (20.5)	3.9% (11.4)	4.9% (14.3)
Water-related historical objects & public art	2.0% (2.0)	6.9% (7.4)	9.8% (13.7)	5.9% (13.3)	3.9% (10.3)	7.8% (22.9)	12.7% (37.1)
Missing	2.0%	6.9%	28.4%	55.9%	61.8%	65.7%	65.7%

**Note:** The percentage in brackets represent valid percentage that ignored missing answers from respondents

### What are your favourite buildings and attractions on the waterfront?

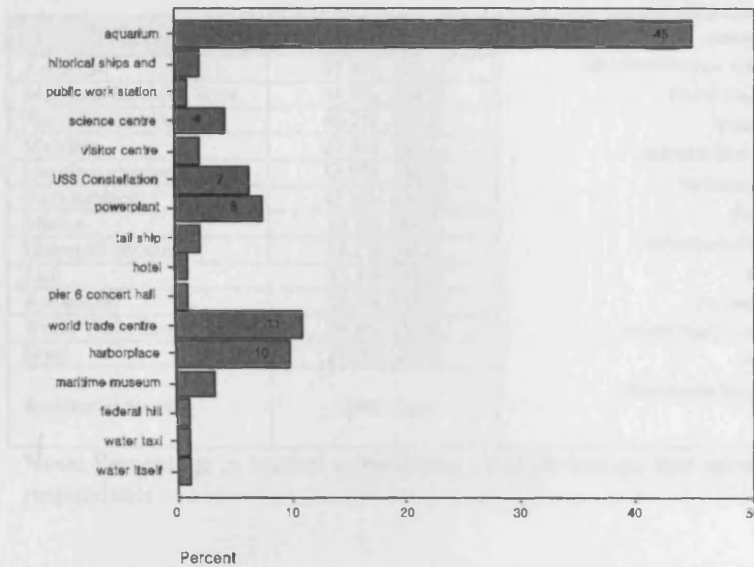
The most popular building on the waterfront was the Aquarium. The second and third choices were historic ships (including the Maritime Museum, the USS Constellation, and Tall Ships) and Harbourplace respectively. Historical buildings, the Power Plant, and World Trade Centre were also popular with respondents (Figure 6.142). It seems that favourite buildings and attractions on the waterfront were strongly related to the 'visual appearance of the buildings' and the 'programmes' and 'attractions' inside the buildings. The majority of respondents answered that the reason for choosing their favourite buildings and attractions were based on 'appearance, design and programmes' (Figure 6.143). In particular, the Aquarium has played a significant role in shaping the overall image of the waterfront in terms of its operating programme and symbolic design. During event days, the installation of the Tall Ships along

<sup>25</sup> It is interesting to mention that the majority of 13 % of the respondents, who chose 'safety' as their reason for a buffer zone, mentioned a terror attack from the water surface realm.

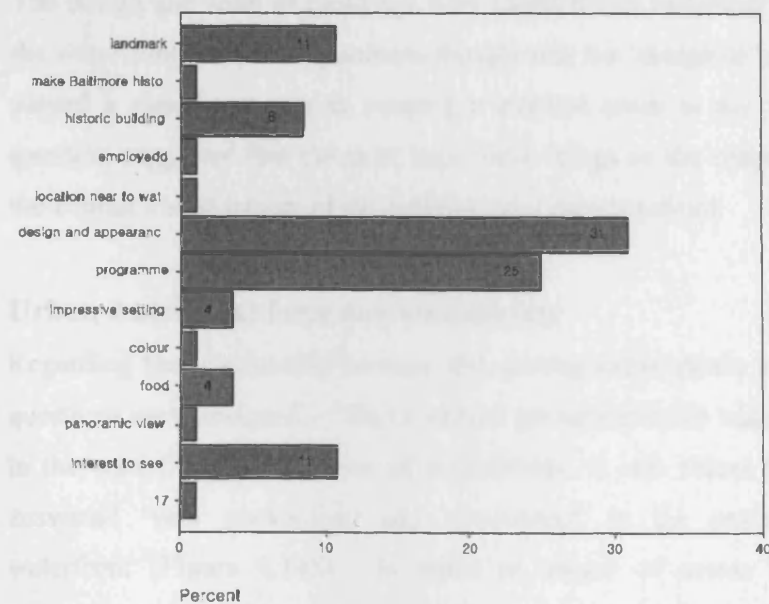


the water's edge was sufficiently influential and predominant to create an image of the cultural waterfront.

**Figure 6.142:** Favourite buildings or attractions on the Inner Harbour waterfront and reason for choice



**Figure 6.143:** Reason for choice of favourite building or attraction on the Inner Harbour waterfront.

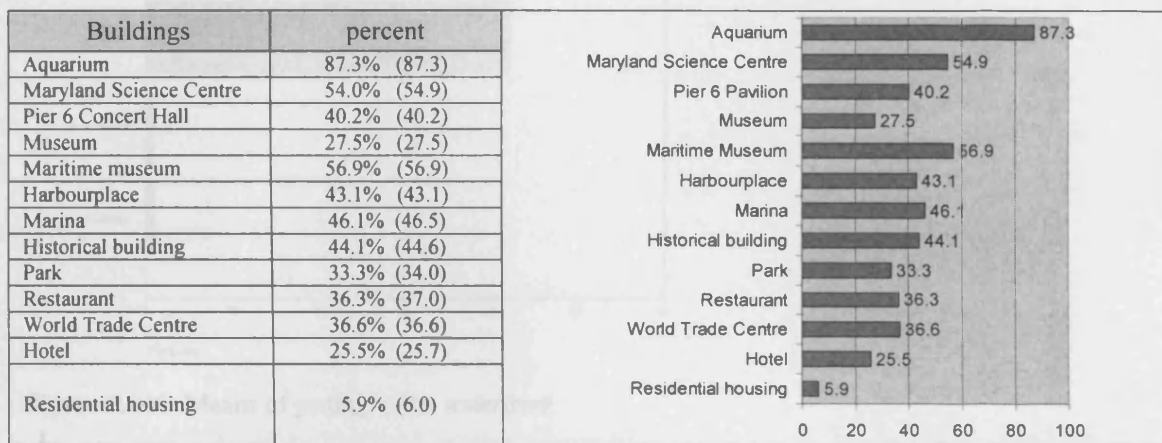


### What buildings add to the quality of the cultural waterfront?

As shown in Figure 6.144, in general most of the respondents liked the current buildings and thought they contributed to creating the quality of the waterfront for cultural uses. 'The Aquarium' was again the most important building that added to the quality of the waterfront. 'The Maritime Museum' was the second choice. The Science Centre was the third choice

among respondents. It was also thought that the overall function of various buildings in the case study area created a balanced contribution to creating a quality waterfront (Figure 6.144).

**Figure 6.144: What buildings add to the quality of the waterfront?**



**Note:** Percentage in bracket representing valid percentage that ignores missing answers from respondents

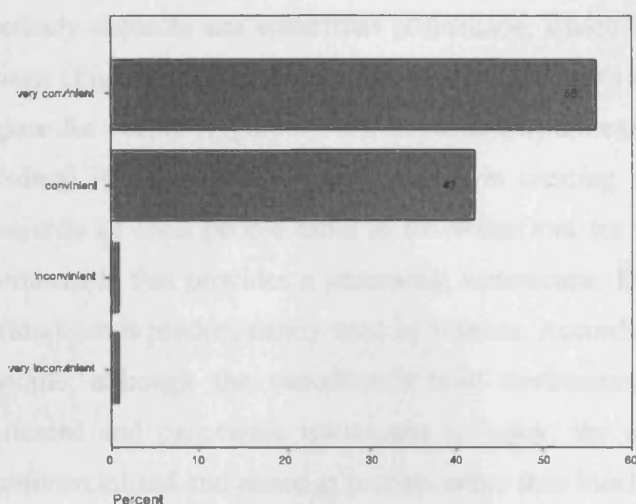
### Do you think that the unique architectural form and design of buildings influenced the sense of the cultural waterfront?

The design and form of buildings were identified as important factors for the cultural use of the waterfront. 91% of respondents thought that the 'design of buildings' and 'landmark form' played a significant role in creating a cultural sense to the waterfront. The result of this question suggested that the most impressive things on the waterfront were strongly related to the overall visual impact of the buildings and the waterfront.

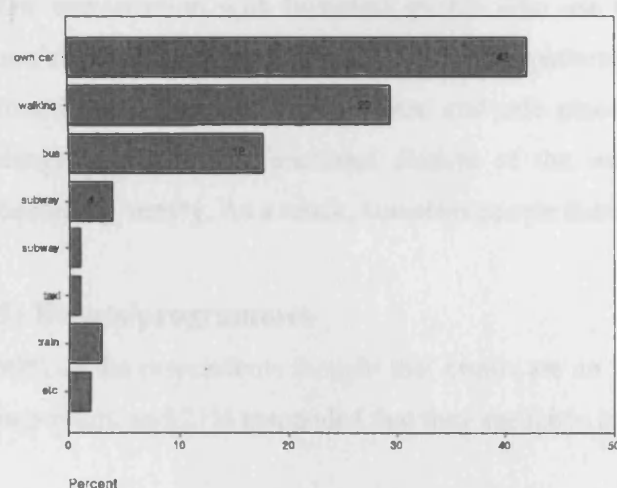
### Urban waterfront form and accessibility

Regarding the relationship between the existing urban fabric and the waterfront, two simple questions were designed – 'Was it easy to get access to the waterfront?' and 'How did you get to the waterfront?' – in terms of accessibility. It was found that 98.1% of the respondents answered 'very convenient' and 'convenient' to the question regarding access to the waterfront (Figure 6.145). In terms of means of access to the waterfront, 42.2% of respondents got to the waterfront in their own car. 29.4% of respondents got to the waterfront by walking. 17.6% of respondents used the bus (Figure 6.146). Those people who used their own car to get to the waterfront often also chose 'walking' as they parked their car in a parking space located in the background waterfront realm, and walked to the waterfront. It seems that the waterfront is not only highly accessible for both pedestrians and vehicles but has enough provision for parking space near the waterfront.

**Figure 6.145: Easy of access to the waterfront**



**Figure 6.146: Means of getting to the waterfront**



### About the waterfront space

As well as data gleaned through the questionnaires', it was possible to gather unsolicited views during conversations held with respondents, especially with local people and the elderly in tourist groups. Conversation often lasted longer than expected because responses were very animated, providing detailed information in response to the questions<sup>26</sup>. Alongside the data from the questions, this 'unofficial' data provided useful findings about 1) the spatial aspects of the waterfront space and 2) its transformation over time.

<sup>26</sup> It is interesting to mention that conversations with respondents, especially local people, during the user questionnaires were often very friendly and lasted for more than a half hour. Among local people, there were homeless people who use the waterfront for their sleeping place after its functional closure (10pm), gay couples, a waiter who works at the Harbourplace, a part-time worker at the USS Constellation, a local policeman, a cleaner, and local residents who go for a walk etc. They provided useful and detailed information beyond the structured questioned questions.

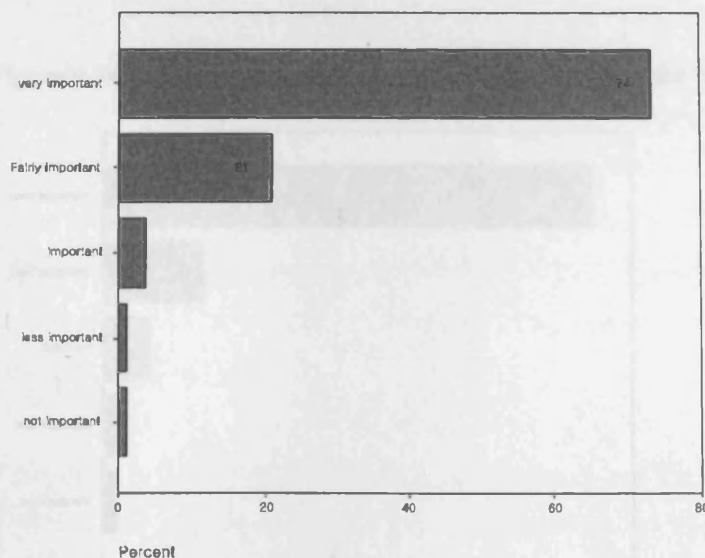
In general, all respondents were satisfied with the structure of the waterfront space as they actively chose to use waterfront promenade, which has visual and physical openness to the water (Figure 6.141), buffer zones along the water's edge (Figure 6.139), and ample walking space for people (Figure 6.140). In particular, the existence of the waterfront promenade and Federal Hill Park was seen as crucial in creating a sense of the waterfront space as the majority of local people came to the waterfront for walking, relaxing, and sitting along the promenade that provides a panoramic waterscape. However, they often complained that the waterfront is predominantly used by tourists. According to unofficial conversations with local people, although the waterfront's built environment has a people-friendly, very public-oriented and panoramic waterscape to enjoy, the use patterns of the waterfront are very commercialised and aimed at tourists rather than local people.

The conversation with homeless people who use the waterfront for sleeping also provided useful data on the transformation of the use patterns of the waterfront space. They mentioned that the waterfront is a very robust and safe place during the daytime but it becomes very dangerous after the functional closure of the waterfront, the whole waterfront suddenly becoming empty. As a result, homeless people themselves felt unsafe.

### 5) Events/programmes

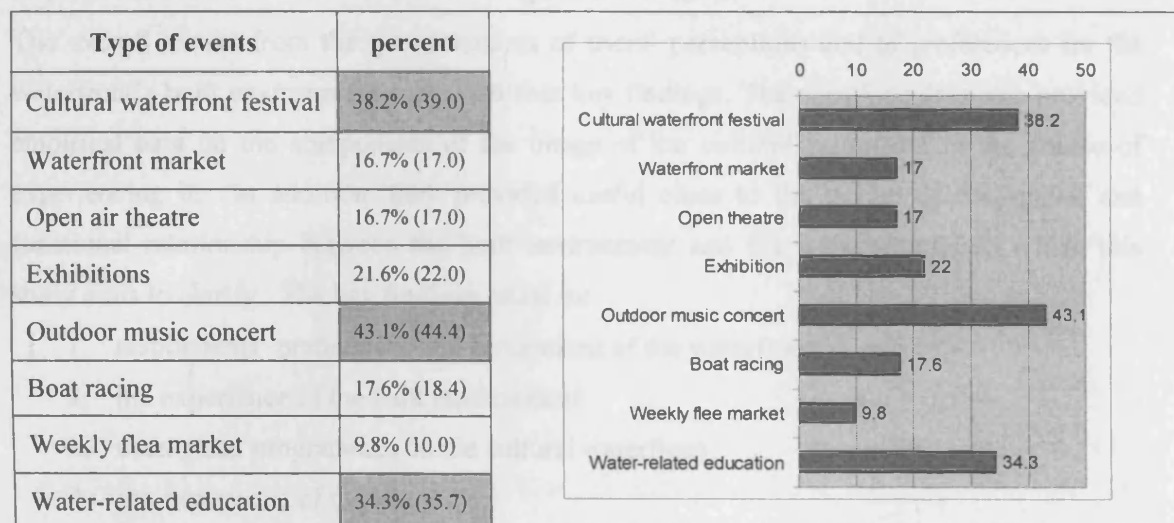
99% of the respondents thought that events are an 'important factor'. 74% thought them very important, and 21% responded that they are fairly important (Figure 6.147).

**Figure 6.147:** Events as important factors in creating the cultural waterfront



Respondents' favourite event on the waterfront was the 'waterfront music concert'. The 'cultural waterfront festival' and 'water-related education programmes' were the second and third favourites respectively. The rest of the events, such as exhibitions, boat racing, and waterfront markets were also popular with respondents (Figure 6.148).

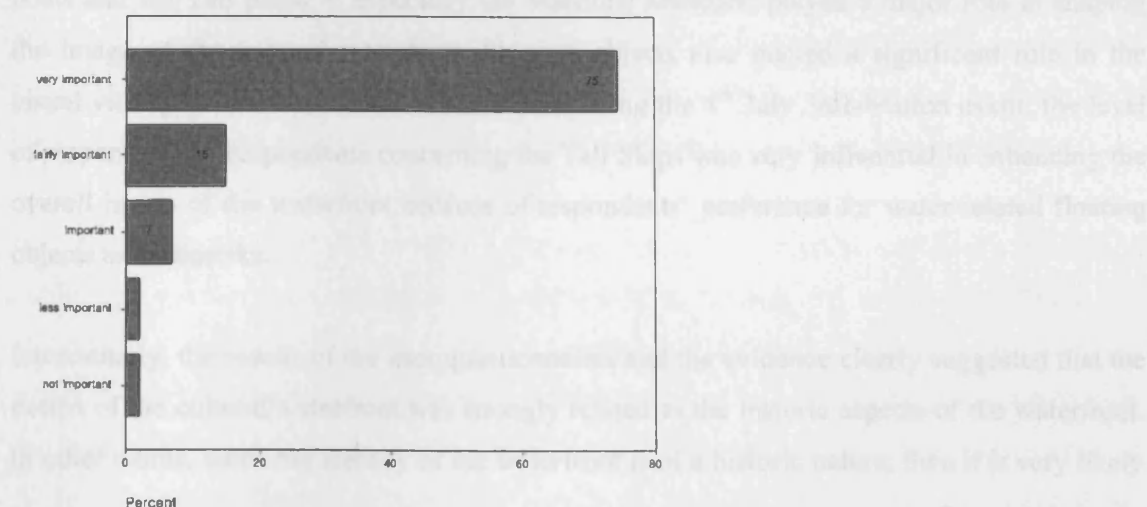
**Figure 6.148:** Favourite events on the waterfront



## 6) The existence of the water, its cultural function and water quality

97% of respondents said that the water's existence was important in promoting the cultural use of the waterfront because human beings are naturally drawn to water. Among the respondents, 75% answered that it was very important, 36% fairly important and 7% important (Figure 6.149).

**Figure 6.149:** The important role played by water in making the Inner Harbour cultural waterfront



As user questionnaires already showed in Figure 6.135, water quality was the worst thing in the case study area. After storms, many respondents commented that the dirty water was one of the worst things in the case study area. It clearly shows the importance of water quality in creating a positive image of the waterfront.

#### **6.4.2.1 Conclusions from the user questionnaires**

The overall results from the questionnaires of users' perceptions and of preferences for the waterfront's built environment suggested four key findings. The questionnaires also provided empirical data on the components of the image of the cultural waterfront in the course of experiencing it. In addition, they provided useful clues to the design of the spatial and functional relationship between the built environment and the water interfaces, which this study aims to clarify. The key findings relate to:

1. respondents' preferences and perceptions of the waterfront
2. the experience of the built environment
3. events and programmes on the cultural waterfront
4. the experience of the water

In terms of user's general perception of the cultural waterfront, most respondents - consisting of 'locals', non-locals' and visitors from 'overseas' - were highly satisfied with the current waterfront. In general, they were impressed by the panoramic waterscape, the mixture of attractions and diverse indoor and outdoor events, and programmes on the waterfront. The purpose of most visits was mainly sightseeing and leisure activities. The majority of people thought that the waterfront was cultural, with a combination of strong commercial activities and historic aspects. Interestingly, the results of the user questionnaires showed that floating objects – the USS Constellation, the Maritime Museum, water taxis, paddling boats, the cruise boats and the Tall Ships – especially the Maritime Museum, played a major role in shaping the image of the cultural waterfront. Floating objects also played a significant role in the visual vitality of the waterfront. In particular, during the 4<sup>th</sup> July Sailabration event, the level of response from respondents concerning the Tall Ships was very influential in enhancing the overall image of the waterfront because of respondents' preference for water-related floating objects as landmarks.

Interestingly, the results of the user questionnaires and the evidence clearly suggested that the notion of the cultural waterfront was strongly related to the historic aspects of the waterfront. In other words, when the identity of the waterfront is of a historic nature, then it is very likely

to be considered and perceived as a cultural waterfront. The historic value of the waterfront directly led to the educational use that attracted families and children.

More interestingly, many respondents experienced the sense of the cultural and historic waterfront through visual perception, experience of the environment, and participation in the activities. Although the substantial demolition of the historic context took place at the beginning of the redevelopment process, a few remaining buildings such as the Power Plant and the Public Works Museum's unique appearance provided a strong historic sense for the respondents. In particular, the historic tall ships in the water surface realm were the strongest generators of an historic sense for respondents. Thus, it is important to consider the visual perceptions and experiences of historic built environment and the design of waterfront's built environment in the course of cultural purpose waterfront redevelopment.

In terms of the relationship between the built environment and the cultural waterfront, respondents' answers showed the importance of the form and structure of the physical waterfront space, which was created by three elements (buildings, open space and historic artefacts) to accommodate cultural uses and activities. In particular, the function of individual buildings, from CG I to VII buildings, as activity generators was identified as an important factor. Above all, the significant role of the cultural grade I buildings (major cultural infrastructure) attracted the attention of the respondents in terms of an activity generator and spatial landmark. At the same time, diversity - mixed and multi-functional including quality architectural design, as seen in the Aquarium, the Science Centre, Harbourplace and the World Trade Centre - all of which influenced the sense of the cultural waterfront.

The notion of the cultural waterfront was strongly related to the physical and visual openness and the existence of public open space aligned with various building types. Thus, many respondents answered that the intangible qualities of the waterfront, such as openness, panoramic waterscape, accessibility to the water, ample space for people, and the sense of the waterfront was important to their enjoyment and appreciation of the cultural waterfronts.

In terms of the relationship between events/programs and the cultural waterfront, the diverse indoor and outdoor events/programmes were crucial in creating the cultural waterfront. The diverse programmes and events of the Aquarium, the Science Centre and the Maritime Museum were chosen as one of the impressive features of the waterfront. At the same time, respondents thought that the events and programmes played an important role in creating quality waterfront space and a cultural waterfront. Water-related events and programmes



(especially the tall ships during event days), musical concerts and festivals were identified as key events on the cultural waterfront.

In terms of the relationship between water and the cultural waterfront, as the results showed, 99% of people thought that the water itself was an essential foundation to create a cultural waterfront because people are naturally drawn to water. The evidence showed that respondents saw visual and physical accessibility to the water as essential to creating a sense of the waterfront. In addition, the majority of respondents answered that the most impressive things on the waterfront was the 'panoramic waterscape'. Furthermore, water-related floating objects in the water were not only impressive visual landmarks but also significant animating components. In short, water itself was crucial to enhancing the level of enjoyment and liveability that is directly associated with the sense of the cultural waterfront.

Finally, the majority of the respondents mentioned that the pollution of the water, noise from heavy traffic, and homeless people were the main problems of the area. Conversations with local workers and people when conducting the user questionnaires showed commercially oriented use patterns of the waterfront for tourists. Furthermore, based on conversations with homeless people, this waterfront needs to take into account 24 hour uses, especially after 10pm.

### **6.4.3 Stakeholder interviews**

While the observational and questionnaire analysis explored user's behaviour patterns, their interaction with the built environment, water, and the events and programmes in the case study area, the stakeholder interviews questioned those people who were involved, or have been involved in shaping the current successful cultural waterfront. The details of the stakeholder interviews method were described in the methodology chapter (section 5.4.2.3). The 13 interviewees (Figure 5.16) were questioned depending upon their involvement in the case study area. Three categories of questions were used:

1. how they saw the current waterfront
2. how they described the transformation of the waterfront
3. how the five components that made the cultural waterfront – urban waterfront form, built environment, water, events/programs, users – contributed to creating it

Because of the interviewees' direct involvement with and experience in managing and sustaining the current waterfront, it was possible to collect detailed data of the specific

components which make the current cultural waterfront. Figure 6.150 demonstrates the key findings from the interviews.

### **1) Their image of the current waterfront**

Regarding how they see the current waterfront, the interviewee groups from both management of the built environment and organisations involved in shaping the current waterfront in the redevelopment process acknowledged that the waterfront is 'very successful' in terms of 1) the redevelopment process, 2) the local economy, 3) the formation of the waterfront's built environment and 4) the management. Above all, the waterfront is 'culturally' very successful. All interviewees responded very quickly, confirming success with confidence and without hesitation. According to Martin Millspaugh, who was the Chief Executive and President of the CCIHM between 1965 and 1985 a period which played a crucial role in the current success:

By all measures, it is hugely successful: primarily by restoring the citizens' pride and self-esteem in their hometown; providing a focal point of public parks and attractions for the enjoyment of all local residents; adding property values that have created \$60 million annually in increased local property and entertainment taxes; spreading the name and favourable reputation of Baltimore across the U.S. and around the world and creating a \$3 billion tourist industry where none existed before (The President and Chief Executive of the CCIHM, Baltimore, Interview, April 2006).

At the same time, the interviewee groups also saw that the waterfront is a combination of cultural, historic, entertainment, commercial, and educational uses. In the words of the executive director of the USS Constellation:

The Inner Harbour is characterised by many different functional aspects. It is a cultural and historic waterfront with leisure and entertainment functions. It is also a commercial waterfront (The executive director of USS Constellation Organisation, Baltimore, Interview, 10:00, 21<sup>st</sup> June 2004).

Most interviewees see the waterfront as very cultural with a variety of functions. At the same time, they think that the recent development is very commercially oriented. It seems that cultural activities and uses are strongly combined with commercial consumerism. This trend was well described by the curator of the Public Works Museum:

Today, the waterfront is cultural and commercial as well. The direction has changed and become more commercial recently. However, the waterfront is still a very cultural oriented waterfront even though there are commercial characteristics (the Curator of Public Works Museum, Baltimore, Interview 12:00 Monday 28<sup>th</sup> June 2004).

Figure 6.150: Mapping stakeholder interviews

Key agendas Interviewees		Key interview target	1. About the Inner Harbour	2. Rundown Baltimore City & its challenge	3. Political leadership Public Private Partnership	4. Design Control through Urban Renewal Plan	5. Downtown & Inner Harbour	6. Built environment	7. Managing events programmes	8. Historic objects buildings, objects and place
Martin Millsbaugh	Charles Centre-Inner Harbour Management Inc.(CCIHM)	<ul style="list-style-type: none"> <li>the role of CCIHM</li> <li>Private-public partnerships</li> <li>Redevelopment process</li> </ul>	<ul style="list-style-type: none"> <li>By all measures, hugely successful with economic prosperity</li> <li>Cultural waterfront with other functions</li> </ul>	<ul style="list-style-type: none"> <li>Determination to reverse the frightening economic and social decline among people, city and entrepreneurs</li> </ul>	<ul style="list-style-type: none"> <li>share a proportionate share of the investment cost, information, especially responsibility</li> <li>A long-term view over a period of generations</li> </ul>	<ul style="list-style-type: none"> <li>sensible and practical urban planning and design by professional, government and business leaders working together on a pro bono basis</li> </ul>	*	<ul style="list-style-type: none"> <li>Public infrastructure and open space development were given first priority with government funds</li> <li>Strict attention to a level of excellence in urban and architectural design quality</li> <li>The Inner Harbour was admired for its shoreline promenade</li> <li>The importance of the Aquarium, the Science Centre, the Power Plant, the Harbourplace, the Convention Centre and the Hyatt Hotel as a turning point for the international waterfront</li> </ul>	<ul style="list-style-type: none"> <li>Local events and ethnic festivals, especially the Tall Ships exhibition in 1976 opened up the potential of a tourist waterfront</li> </ul>	<ul style="list-style-type: none"> <li>Although there was huge demolition and lack of historic preservation, during the development process, there were efforts to protect historic buildings from demolition (e.g. the Power Plant)</li> </ul>
Gary Cole	Baltimore City Planning Department	<ul style="list-style-type: none"> <li>Transformation process</li> </ul>	<ul style="list-style-type: none"> <li>Very successful</li> <li>Very cultural waterfront which has a lot of interesting layers</li> </ul>	<ul style="list-style-type: none"> <li>Urban sprawl &amp; suburb city caused decline of the downtown</li> <li>Start to regenerate the Inner Harbour as an urban waterfront park</li> </ul>	*	<ul style="list-style-type: none"> <li>Development, design guidance and restriction at early stage (e.g. 200 feet wide promenade)</li> <li>City's acquisition of the land was crucial for control</li> </ul>	*	<ul style="list-style-type: none"> <li>At the beginning, deliberately conscious effort to create the promenade open spaces</li> <li>Good network of pedestrian and vehicles to the water and walking distance from office block</li> <li>Tremendous capacity of parking space for tourists &amp; visitors</li> <li>Aquarium, Harbourplace, Science centre played an important role in creating a cultural waterfront</li> <li>Design of building, next to downtown, residential area, visual contact with the water</li> </ul>	<ul style="list-style-type: none"> <li>City Fair and ethnic festival introduced a lot of people, city and regional people to the Harbour</li> <li>Business people start to be interested in investment because of critical mass</li> <li>Combination of a lot of things</li> <li>Bustling activities with mixed and multi-functional buildings</li> </ul>	<ul style="list-style-type: none"> <li>Preservation and demolition took place simultaneously but both work for success</li> <li>Water is fundamental</li> </ul>
Shubroto Bose	Baltimore Development Corporation	<ul style="list-style-type: none"> <li>Redevelopment process</li> <li>Design Control on the waterfront space</li> <li>Role of BDC</li> </ul>	<ul style="list-style-type: none"> <li>Very successful</li> <li>Very cultural</li> <li>Tourist-oriented waterfront</li> </ul>	<ul style="list-style-type: none"> <li>Decline of commercial shipping industry</li> <li>Like many other American cities, expansion of Suburban shopping mall and city caused decline of downtown</li> <li>Acquisition of rundown Inner Harbour area and urban renewal plan for regeneration</li> </ul>	<ul style="list-style-type: none"> <li>BDC is semi-autonomous, funded by city but makes own decision</li> <li>Facilitate developers but on the basis of a master plan that decides a lot of things</li> <li>All buildings constructed by successful private &amp; public partnership</li> <li>Leadership of Charles Centre and Inner Harbour Management</li> </ul>	<ul style="list-style-type: none"> <li>City's acquisition of the land and creation of renewal plan</li> <li>Strict zoning regulation</li> <li>City developed open space and landscape</li> <li>Tight control over all development</li> <li>Design Review process on selected developers' proposal (Architectural Review Board, BDC)</li> </ul>	<ul style="list-style-type: none"> <li>Safety of downtown after working hours</li> <li>More residential housing to sustain activities in downtown</li> <li>Converting office building into residential housing units</li> </ul>	<ul style="list-style-type: none"> <li>Developing fundamental infrastructure for public use – open space, promenade, park, parking etc.</li> <li>World class aquarium and Science Centre</li> <li>Mixture of buildings – Convention Centre, Hotels - to attract outsiders</li> <li>Connection downtown, sports facilities at Camden Yard and residences on the waterfront</li> </ul>	<ul style="list-style-type: none"> <li>Attracts more visitors than Disney Centre a few years before</li> </ul>	*
Jennifer Riely	Living Classrooms Foundation	<ul style="list-style-type: none"> <li>Waterfront-related educational programme</li> <li>Modern functions</li> <li>Historical</li> </ul>	<ul style="list-style-type: none"> <li>definitely cultural and a mixture of ethnic community</li> </ul>	<ul style="list-style-type: none"> <li>Tremendous job to transform industrial city to tourist destination</li> <li>very desirable place to come</li> </ul>	*	*	<ul style="list-style-type: none"> <li>drastic change took place last 10 years</li> </ul>	<ul style="list-style-type: none"> <li>Aquarium and good hotel are landmarks</li> <li>Using historical Lighthouse as a Maritime Museum</li> <li>Using historical ships used for fish industry as modern educational</li> </ul>	<ul style="list-style-type: none"> <li>Water-related fisherman programme on peak for students and adults – fishing, testing water quality, navigation skills,</li> </ul>	<ul style="list-style-type: none"> <li>A lot of boat activities enliven the Inner Harbour</li> </ul>

		floating object						<ul style="list-style-type: none"> <li>programme designed to demonstrate the same things</li> <li>Lots of investment to maintain historical ships for educational purposes</li> </ul>	<ul style="list-style-type: none"> <li>teamwork etc.</li> <li>Land-based programme during off peak times for students and adults</li> <li>It is a privilege for us to be able to continue teaching</li> <li>Overnight and camping programme on the ship</li> </ul>	
<b>Christopher Rowsom</b>	USS Constellation	<ul style="list-style-type: none"> <li>Role of historic ship and its adaptive reuse in creating a cultural waterfront</li> </ul>	<ul style="list-style-type: none"> <li>It is cultural, historical and commercial &amp; entertainment</li> </ul>	<ul style="list-style-type: none"> <li>Dirty old industrial city</li> <li>Renaissance started with installation of USS Constellation</li> </ul>	*	*	*	<ul style="list-style-type: none"> <li>USS Constellation was an important tourist attraction on the Inner Harbour</li> </ul>	<ul style="list-style-type: none"> <li>About 100,000 people on board, weekend is busiest during summer time, 120,000 in 2002</li> <li>2,000 people a day on weekend</li> <li>6 major city wide events and a lot of minor events, other living history programmes, student camping on the ship</li> <li>Family oriented programme with other facilities like aquarium and science centre</li> </ul>	<ul style="list-style-type: none"> <li>Experience a piece of the past</li> <li>It is a bit of romance, mystery and taking vicarious adventure on board</li> <li>Abnormality</li> <li>The historical is strongly related with the educational Developed Historically oriented cultural programme for adaptive reuse of USS Constellation</li> </ul>
<b>John Kellet</b>	Waterfront Promenade Partnership	<ul style="list-style-type: none"> <li>The achievement of 7.5 miles waterfront promenade</li> <li>The role of the promenade in the success</li> </ul>	<ul style="list-style-type: none"> <li>Very successful</li> </ul>	<ul style="list-style-type: none"> <li>Ugly sewer harbour becomes million-dollar generating economic engine</li> </ul>	<ul style="list-style-type: none"> <li>A lot of credit has to be given to James Rouse's leadership</li> <li>City's determined decision for public use on the waterfront against developers</li> <li>Baltimore Waterfront Promenade Partnership's determined approach to the same goal –public accessibility</li> </ul>	<ul style="list-style-type: none"> <li>Design of use patterns along the promenade in terms of time dimension</li> </ul>	*	<ul style="list-style-type: none"> <li>7.5 miles waterfront promenade when redevelopment is completed</li> <li>The promenade is one of the smartest things Baltimore city ever did.</li> <li>It was a requirement that public waterfront redevelopment provides public access to the waterfront</li> <li>Early and late 90s, developers realised the value of critical mass on the promenade</li> <li>Expensive engineering works and structure to make interface between water and land – 15,000 dollars per square feet</li> <li>Environmental quality of water along the promenade</li> </ul>	*	*
<b>John Kellet</b>	Maritime Museum	<ul style="list-style-type: none"> <li>Function of Maritime Museum</li> <li>Value of historical development approach</li> </ul>	<ul style="list-style-type: none"> <li>Successful</li> <li>Cultural aspect is critical</li> <li>A leisure destination</li> <li>Very historical waterfront</li> </ul>	*	<ul style="list-style-type: none"> <li>Maintenance and management of historical ships from city and organisation</li> </ul>	*	*	<ul style="list-style-type: none"> <li>Location of Maritime Museum which has good visual contact with the observers is very important on the waterfront</li> </ul>	<ul style="list-style-type: none"> <li>Highlight human history and experience behind the maritime museum as artefacts through programme and events</li> <li>150,000 annual visitation with combination of children, adults, international visitors</li> </ul>	<ul style="list-style-type: none"> <li>Historical aspects of unique history is part of what makes Baltimore</li> <li>These maritime museum ships are the most historic in the world</li> <li>both engineering and human experience aspects fascinating for cultural use</li> </ul>
<b>Andrea Butler</b>	Aquarium (see the Aquarium section in Section 6.4 for details)	<ul style="list-style-type: none"> <li>Function of the aquarium</li> <li>Events/program</li> </ul>						<ul style="list-style-type: none"> <li>Played an important role in creating cultural waterfront with economic benefits</li> <li>Unique landmark building in the Inner Harbour</li> <li>9 million visitors per year, world-class</li> </ul>		

								exhibition, management and		
<b>Adair Sutton</b>	Harbourplace	<ul style="list-style-type: none"> <li>the success of Harbourplace</li> <li>key factors its in success</li> </ul>	<ul style="list-style-type: none"> <li>Very successful</li> <li>Very cultural because of entertainment factor</li> </ul>	<ul style="list-style-type: none"> <li>derelict waterfront and Baltimore is going to die</li> </ul>	<ul style="list-style-type: none"> <li>co-host entire events with city</li> </ul>	*	<ul style="list-style-type: none"> <li>it would not be successful unless on the water</li> </ul>	<ul style="list-style-type: none"> <li>The success relies entirely on near location to water</li> <li>Harbourplace captures 9.8 million people a year. 90% visitors in Baltimore come to Harbourplace</li> <li>European design of building and location near the water with visual contact to the water</li> <li>Harbourplace is the most successful outcome of the Festive Marketplace concept</li> </ul>	<ul style="list-style-type: none"> <li>Applied Festive Marketplace concept – eating + entertainment + shopping + outdoor/indoor performance is formula for success</li> <li>Street performance at amphitheatre for 25 years</li> <li>Daily, weekend, event day programme. Iconic events are Scent, Eater and July 4th Sailbration</li> <li>250,000 – 300,000 gathered on 4<sup>th</sup> July in 2003</li> <li>Investment on free events to public</li> </ul>	*
<b>Christine Rowett</b>	Science Centre (see Science Centre Sedion in Section 6.4)	<ul style="list-style-type: none"> <li>Function of the Science Centre</li> <li>Events/programmes</li> </ul>						<ul style="list-style-type: none"> <li>Played an important role in creating cultural waterfront with economic benefits</li> <li>600,000 visitors and landmark building</li> </ul>		
<b>Vince Pompa</b>	Public Works Museum	<ul style="list-style-type: none"> <li>Conversion of historical building into modern use and its role on the waterfront</li> </ul>	<ul style="list-style-type: none"> <li>Very desirable cultural destination for everyone who comes to city but very commercial recently</li> <li>Transformation in last 35 and 40 years is just wonderful</li> </ul>	*	<ul style="list-style-type: none"> <li>it was designed, planned and talked about for many years before redevelopment</li> <li>James Rouse's passion for reviving cities</li> <li>Mayor Shaeffer promotes City Fair</li> </ul>	*	*	<ul style="list-style-type: none"> <li>All different functions of buildings spun off each other to create a current waterfront</li> </ul>	<ul style="list-style-type: none"> <li>City Fair on the waterfront in the development process was so successful because people are naturally drawn to water – multi cultural events</li> <li>Water is a powerful element to draw people</li> </ul>	<ul style="list-style-type: none"> <li>People come by here because of such a historical building</li> <li>Different landscape between modern look and wonderful old architecture</li> <li>The first ever Public Works Museum in the world</li> <li>It is wise to use a historical building to see what used to be</li> <li>20,000 annual visitors, educational programme for children</li> <li>it creates a story here that make the Inner Harbour unique as a part of the overall picture of the Inner Harbour</li> </ul>
<b>Antenea</b>	Hyatt Hotel	<ul style="list-style-type: none"> <li>relationship hotel and waterfront</li> </ul>	<ul style="list-style-type: none"> <li>Tourist site</li> <li>Everything is here</li> </ul>	*	*	*	<ul style="list-style-type: none"> <li>location on the waterfront is critical for the business</li> </ul>	<ul style="list-style-type: none"> <li>Location near to the water and downtown provides a great advantage for business</li> <li>Main customer are convention and vocational customers during summer time</li> </ul>	*	*
<b>Lorna Walls</b>	Baltimore Convention Centre	<ul style="list-style-type: none"> <li>relationship hotel and waterfront</li> </ul>	*	*	*	*	<ul style="list-style-type: none"> <li>middle of everything between Inner harbour and down – 5 minutes walk</li> </ul>	<ul style="list-style-type: none"> <li>Generating people's traffic to the waterfront after convention</li> <li>Good accessibility for both vehicles and pedestrians - Skywalk and road</li> <li>Important role in bring business people to the waterfront</li> </ul>	<ul style="list-style-type: none"> <li>200 events each year</li> </ul>	*

Interestingly, all of the interviewees had lived in the area for a long period. Among them, Christopher Lawson, Executive Director of the USS Constellation Organisation, had been involved for more than 20 years. John Kellet, the director of both the Waterfront Promenade Partnerships and the Maritime Museum, and Vince Pompa, the curator of the Public Works Museum grew up in Baltimore. Jennifer Riely, the director of the Living Classrooms Foundation had worked for the Foundation more than 8 years. The rest of the interviewees all lived locally in Baltimore. Due to this, in the course of the description of the transformation of the waterfront, they were excited and gave very clear, detailed and empirical information. Vince Pompa, who had grown up in Baltimore, gave a detailed description of the successful transformation:

I grew up not that far from the Inner Harbour in the 1950s and the 1960s. I clearly remember the rundown waterfront. The whole waterfront was surrounded by many underused and decaying warehouses, piers, buildings and factories. The water was very dirty. Factories and buildings literally deposited and created an ugly harbour. There were lumber companies and iron companies all over this area. It was not a desirable area where people would come. The transformation in the past 35 and 40 years was just wonderful. The redevelopment of the Inner Harbour was not planned quickly. There was a long consultation process with stakeholders. There was a developer, James Rouse, who had a passion for reviving the city and reviving the Inner Harbour (Curator of Public Works Museum, Baltimore, Interview, 12:00 Monday 28<sup>th</sup> June 2004).

## **2) How they described the transformation of the waterfront**

Regarding the transformation process of the waterfront, the interviewees from both groups commonly described three key aspects that played an important role in creating the current cultural waterfront. Firstly, they mentioned the strong political leadership of the mayor, William Donald Schaefer (1971-1987) and the entrepreneurship of James Rouse, who invented the concept of the 'festive marketplace'. In addition, through the private-public partnership between Baltimore city and local entrepreneurs, it was possible to produce an urban renewal plan for public use of the waterfront with a long-term perspective that became a foundation for success. The production of the master plan for public use during the early stages in the 1960s was critical. Interviewees, including the chief of Architecture and Urban Design at the Baltimore Development Corporation (BDC) and the chief of the Land Use and Urban Design Department at Baltimore City Planning Department (BCPD), which played an important role in the redevelopment process in the past and managing the current waterfront, explained the implementation process of the master plan. In the words of Shubroto Bose in BDC:

In the 1960s, water-related industries such as shipbuilding declined and large cargo ship could not come to the Inner Harbour. Because of that, the whole waterfront became derelict. With strong political leadership, the Charles Centre and Inner Harbour

Management Inc. prepared a master plan to create urban retail and residential places around the waterfront [...] All the waterfront built environment was the result of private and public partnership. The political leadership was also an important factor, such as the acquisition and clearance of many rundown properties from different local, state and federal stakeholders who had complex legal and legislative responsibility. After that, the city created a master plan and designated zoning, with regulations that each site was given a number. They were offered to developers. The city was concerned with the preparation of green open space and public infrastructure from the beginning (Chief architect and urban design department of Baltimore Development Corporation, Baltimore, Interview, 10:30am 8<sup>th</sup> July 2004).

Secondly, the interviewees often mentioned the key buildings and floating objects, such as the Aquarium, Harbourplace, Science Centre and Maritime Museum. In particular, all interviewees emphasized the contribution of the Aquarium to the current success. The result of the interviews showed the importance of the Aquarium as a spatial structuring element, visual landmark and a symbolic place-making building. Finally, diversity resulting from the combinations of cultural, commercial, historic, leisure and educational activities on the waterfront was a dominant impression held by the interviewees.

### **3) How the five components contribute to creating the current waterfront**

#### **Built environment**

Three elements of the built environment – buildings, open space and historic artefacts – were examined through the interviewees (Figure 6.150). In terms of buildings, interviewees who were employed in different types of buildings were questioned. As mentioned above, the Aquarium and the Science Centre (CG I buildings), were the most important assets in terms of visitor numbers, local economy, and employment, educational and synergy effects. The statistical evidence clearly demonstrated their significant contribution to the overall cultural waterfront. The observational survey and user questionnaires also showed the same results. The interviewees emphasized the success through the number of visitors (Figure 6.122) and year-round building-related events and programmes. The successful functions of CGI buildings were often mentioned as a crucial factor in attracting various age groups, sustaining activity and providing opportunities for secondary activities.

For leisure and entertainment (CGII), eating (CGIII) and shopping-related (CGIV) buildings, Adair Sutton, the marketing director of the Harbourplace, was interviewed. Harbourplace is a combination of the above three types. Apart from the successful multi-functioning of the building, she emphasized the importance of events and programmes in the success of Harbourplace. Two important aspects were found. Firstly, Harbourplace was a flagship project to revitalise the decaying Inner Harbour. It was unique in all the Rouse Company's



redevelopment cases. In addition, its success became a world-wide example. Furthermore, it became the turning point for the international cultural waterfront. According to her:

It is the number one tourist destination in Maryland and ranks high in the United States. We know our building captures about 9.8 million people a year. We have a web-based traffic counting system that measures very accurate traffic counts at 18 different doors of the three buildings. Baltimore itself only gets 11 million visitors but we get 9.8 million [2003]. This is about 90%. Everyone that comes to Baltimore comes here (Marketing director of Harbourplace and Gallery, Baltimore, Interview, 14:00, 21<sup>st</sup> June 2004).

Interestingly, Sutton equally emphasized that the success of Harbourplace was strongly related to its geographical location near the water, open spaces, and the wide promenade, the architectural design of the building and accessibility from downtown:

It would not be successful unless on the water. Absolutely, it is strongly related to the existence of water. It can not be successful if there is no waterfront. A festive marketplace is usually a concept developed on the waterfront, combining shopping, dining and entertainment and events with panoramic waterscape, such as the bay side in Miami, River walking Fanueil Hall in Boston and Jacksonville and South Seaport in New York. Everything is on the water. The existence of the waterfront is the key to its success (Marketing director of Harbourplace and Gallery, Baltimore, Interview, 14:00, 21<sup>st</sup> June 2004).

Secondly, the notion of the 'festive marketplace', characterised by the formula of eating, shopping, entertainment and event functions, was critical for the success of Harbourplace itself and the success of the overall cultural waterfront.

In the case of the CG V buildings, a front desk worker at the Hyatt Hotel, which was built around 1980, was interviewed. The interview result showed that its location near to the waterfront was critical to the business. Many customers were tourists and business people attending conventions during the summer time when the use of the waterfront was at its peak. The relationship between the success of the business and the existence of the waterfront was inseparable. According to her:

Absolutely... absolutely...everybody loves to be near water with easy accessibility. Thus, we charge the price of a room depending on whether the room faces the waterfront or not because we have a limited number of rooms which have waterfront views (Front desk clerk of Hyatt Hotel, Baltimore, Interview, 10:00 13<sup>th</sup> July 2004).

The director of Sales and Marketing of the Baltimore Convention Centre also mentioned the reciprocal relationship between the Inner Harbour and the Convention Centre, and the importance of the waterfront for the business of the Convention Centre. The Convention Centre generates people most likely to visit the waterfront. At the same time, the waterfront also drew people who attended various conventions that took place in the Convention Centre.

She also emphasised the importance of accessibility from the Convention Centre to the waterfront through the skywalk. In her own words:

You know Camden Yards Sports Park is over there and the Harbour is over here. We are kind of in the middle of everything, which some convention centres do not have. The Convention Centre is located at the Inner Harbour, less than 5 minutes walking distance. This makes the Convention Centre very attractive. [...] I would say 75% of visitors to the Convention Centre visit the waterfront. The existence of the waterfront helps the business of the Convention Centre (Director of sales and marketing of Baltimore Convention Centre, Baltimore, Interview, 14:00 9<sup>th</sup> July 2004).

### **Open space**

The waterfront promenade in the Inner Harbour is the most important public space because of its continuity with ample space and its location along the water's edge. However, the key question during the interview focused on how the continuity and ample space for public use was preserved in the redevelopment process, and what contribution it made to the current success.

John Kellet, the director of the Waterfront Promenade Partnerships, mentioned that the unique spatial quality of the promenade resulted from a public vision of the Inner Harbour in the beginning, and a strict urban renewal plan was forced on to developers who were reluctant to sacrifice the waterscape. He also emphasized the moment when the developers and Baltimore City Council in the early 1970s realised the value of public accessibility, which brought more value to the properties. According to him:

I would like to give a lot of credit to the visionaries of the early 1970s because they realised that public accessibility to the waterfront promenade was going to be a key success of the waterfront. In addition, allowing people to get along the waterfront was a key to using the waterfront as a true city asset. Furthermore, the urban renewal plan started that any new development had to provide public access to the waterfront, which was probably one of the smartest thing Baltimore City ever did. The interesting thing was that developers resisted this because of safety and better view. However, in the early and late 1990s, most developers realised that the waterfront promenade for public use brought more value to their properties. Developers are now really on our side when it comes to creating public access. I have been to a lot of cities which have waterfronts, but they do not have a continuous and spacious 7.5 mile waterfront promenade. [...] We have a group called the Baltimore Waterfront Promenade Partnership. It is a unique group, consisting of developers, residents of the rich community, activists, city agencies, architects and engineers. Everybody shared the same vision. Public access to the waterfront is what makes Baltimore Inner Harbour unique (Director of Waterfront Promenade Partnerships, Baltimore, Interview, 10:30 15<sup>th</sup> July 2004).

Gary Cole, the chief of the Land Use and Urban Design Department in Baltimore's City Planning Department, emphasized the highly accessible street patterns from downtown to the water, and the ample parking space near the waterfront. Above all, he thought the success of




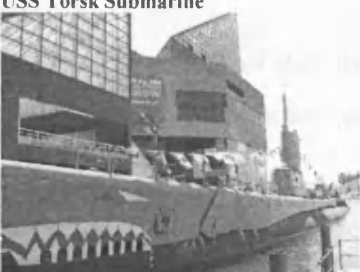

the waterfront owed much to the provision of public space such as parks, open space and promenade in the early waterfront redevelopment process:










The waterfront redevelopment in Baltimore essentially started off with the Inner Harbour. At that time, the goal was to clear the derelict built environment, which had a blight influence on the city, to create a public park. The public park along the waterfront promenade primarily provided downtown workers with space for relaxing and lunch breaks, and a place for ethnic festivals. However, once its function developed, it was unbelievable. A number of people from all over just came down and congregated along the promenade (Chief in land use and urban design department of Baltimore City Planning Department, Baltimore, Interview, 15:00 16<sup>th</sup> July 2004).

## Historic artefacts

Most interviewees mentioned the historic value of the waterfront, which has unique historic artefacts – historic buildings, objects and places. They are located both on land and in the water surface realm (Figure 6.151). Four important functions of historic artefacts were found from the interviews.

**Figure 6.151:** Three elements of the historic artefacts in the case study area and their previous and current use

1. Historic buildings		
<p><b>Power Plant</b></p>  <p>Source: Author 12:15 Sunday 20 June 2004</p> <ul style="list-style-type: none"> <li>▪ Before - Old electric power plant of Baltimore Gas &amp; Electric Co.</li> <li>▪ Now - Entertainment complex – Hard Rock café, Bookshop, ESPN zone</li> </ul>	<p><b>Public Works Museum</b></p>  <p>Source: Author 15:32 Tuesday 22 June 2004</p> <ul style="list-style-type: none"> <li>▪ Before - Sewage pumping station</li> <li>▪ After - Museum for tunnel, roads, bridges, clean water and recycling waste water</li> </ul>	
2. Historic objects		
<p><b>USS Constellation</b></p>  <p>Source: author, 10:16 Thursday 24 June 2004</p> <ul style="list-style-type: none"> <li>▪ Before - US naval ship (1853- 1933)</li> <li>▪ Now - Maritime Museum (first tourist attraction)</li> </ul>	<p><b>USS Torsk Submarine</b></p>  <p>Source: author 11:53 Sunday 20 June 2004</p> <ul style="list-style-type: none"> <li>▪ Before - Served during WWII</li> <li>▪ Now - Maritime Museum</li> </ul>	<p><b>Seven Foot Knoll Lighthouse</b></p>  <p>Source: author 13:28 Friday 2 July 2004</p> <ul style="list-style-type: none"> <li>▪ Before - Floating Lighthouse</li> <li>▪ Now - Maritime Museum &amp; Living Maritime Museum</li> </ul>

<b>Coast Guard Cutter Taney</b>  Source: author 17:06 Tuesday 22 June 2004 <ul style="list-style-type: none"> <li>Before - Coast guard ship survivor of Pearl Harbour attack</li> <li>Now - Maritime museum</li> </ul>	<b>Lightship Chesapeake</b>  Source: author 11:06 Sunday 20 June 2004 <ul style="list-style-type: none"> <li>Before - Lightship at Chesapeake and Delaware Bay</li> <li>Now - Maritime Museum</li> </ul>	<b>City Clipper</b>  Source: author 10:21 Wednesday 23 June 2004 <ul style="list-style-type: none"> <li>Before</li> <li>Now -Cruise and on board programme</li> </ul>
<b>Lady Maryland Mildred Belle Sigsbee</b>  Source: author 11:21 Monday 28 June 2004 <ul style="list-style-type: none"> <li>Before - Fishing ships</li> <li>Now - Living Classrooms Foundation</li> </ul>	<b>Pride of Baltimore II</b>  Source: author 12:02 Wednesday 7 July 2004 <ul style="list-style-type: none"> <li>Before - Replica of historic ship - Pride of Baltimore</li> <li>Now - Maryland's Goodwill Ambassador</li> </ul>	<b>Tall Ships (during event days)</b>  Source:author 12:28 Wednesday 30 June 2004 <ul style="list-style-type: none"> <li>Before - Tall Ships</li> <li>Now -Goodwill ambassador</li> </ul>
<b>3. Historic places</b>		
<b>Industrial heritage</b>  Source: author 16:04 Sunday 20 June 2004 <ul style="list-style-type: none"> <li>Before - Industrial heritage</li> <li>Now - Public art</li> </ul>	<b>Federal Hill Park</b>  Source: author 10:15 Thursday 24 June 2004 <ul style="list-style-type: none"> <li>Before - Federal forces' observation tower during Civil War</li> <li>Now - local park</li> </ul>	<b>Rash Field</b>  Source: author 18:28 Tuesday 22 June 2004 <ul style="list-style-type: none"> <li>Before - waterfront</li> <li>Now - city-wide public space &amp; memorial place for Pride of Baltimore</li> </ul>

Firstly, in the words of Vince Pompa, the curator of the first Public Works Museum in the world, "It creates a story that makes the Inner Harbour unique as part of the overall picture ". He continued:

The Public Works Museum was completed in 1912 as a sewerage pumping station. It is still active as a sewerage pumping station. They pump about 25 to 30 million gallons of sewerage a day. People are attracted by this building because it is such a historic building and wonderful old architecture. [...] People can get and learn about the history of the building and its previous function. It is wise to use historic buildings to understand what used to exist and what was the beginning of the city and town instead of getting rid of them (Curator of the Public Works Museum, Baltimore, Interview, 12:00, 28<sup>th</sup> June 2004).

Secondly, historic buildings and historic floating objects provide symbolic landmarks and structuring elements on the waterfront as important visual magnets. John Kellet, the director of the Maritime Museum, introduced an argument that related to the relocation of the Submarine Toask and Lightship (both are part of the Maritime Museum), located along Pier 3, which houses the Aquarium (Figure 6.61). The Aquarium Committee had asked for the relocation of the Submarine Toask and the Lightship to another place which had limited visual contact for users, but he had to insist on retaining the position of the floating objects because of their visual importance. Thirdly, despite the large-scale demolition of the historic built environment during the early redevelopment process, as the user questionnaires also clearly showed, many respondents considered that the waterfront was a very historic place because of the visual attraction of historic artefacts such as the USS Constellation, the Submarine, and the Tall Ships in the water surface realm.

Finally, historic artefacts played an important role in generating activities and operating as educational facilities. The interview found that many users were school children and family groups. In addition, there were overnight programmes for children on the ships and regular events every day for educational purposes. For example, in the words of the executive director of the USS Constellation:

The Museum itself does have about six major events per year and we do lots of minor events like having historians come to speak on the ship and other living history programmes. In addition, we have tours for groups. This ship is very educational with historic facilities. Such as educational function is definitely one of our missions (Executive director of USS Constellation, Baltimore, Interview, 10:00, 21<sup>st</sup> June 2004).

In short, historic artefacts played an important role in creating multi-functional uses on the waterfront – as symbolic landmarks, visual attractions, educational uses, entertainment and activity generators. Above all, the historic image itself was strongly related to the image of the cultural waterfront.

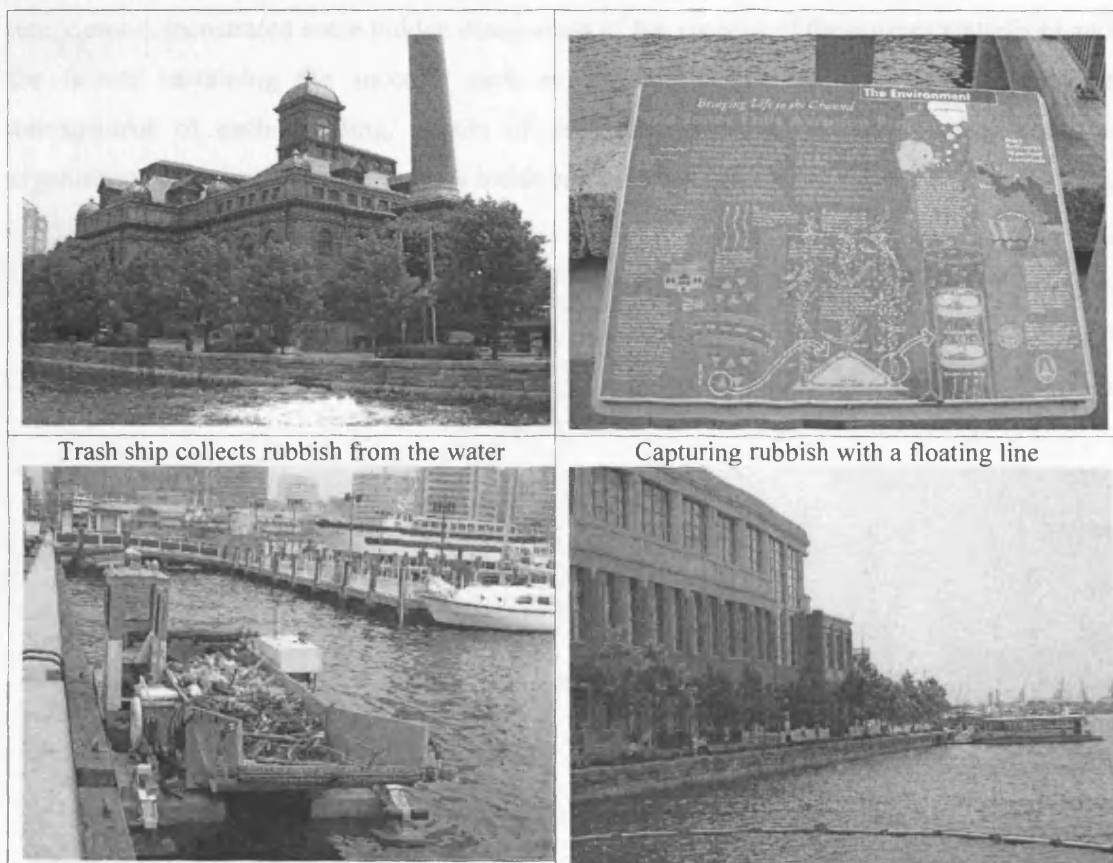
### **Events/programmes**

During the interviews, events and programmes were identified as important factors making the cultural waterfront (Figure 6.150). The interview revealed that the waterfront has grown with small-scale (e.g. the City Fair and ethnic festivals) and large-scale (e.g. the Tall Ships) events and programmes. The Tall Ships exhibition in 1973 was often mentioned because it provided the potential for tourists and an international waterfront from local public space. In addition, the Amphitheatre is considered the most important events and activity nodes. Furthermore, year round building-related events and programmes in CGI buildings were identified as important factors in creating cultural use and activities among interviewees.

### The water and water quality

The interview results also showed that water quality is an important concern in sustaining current success. The interview with the director of the Waterfront Promenade Partnerships showed that the city government had tried to install equipment to intercept the trash between Chesapeake Bay and the case study area to solve this fundamental problem. In addition, to improve the water quality in the case study area, the John Falls Aeration Project in front of the Public Works Museum demonstrated the consistent concerns about water quality (Figure 6.152).

**Figure 6.152:** The John Falls Aeration Project to improve water quality (top), trash ship and floating line



#### 6.4.3.1 Conclusions from stakeholder interviews

Figure 6.150 summarises the overall results of the interview in terms of eight perspectives. Certain issues were not originally covered in the questions for the interview but came out during the conversations.

Overall, the two interview groups felt that the waterfront was very successful in terms of the transformation of the image of the Inner Harbour, through cultural and economic achievement. Interviewees spent some time explaining the transformation of the Inner Harbour with very detailed information (often they brought master plans, maps and data sheets to the interview). They often mentioned specific names of people who had provided great leadership in the redevelopment process<sup>27</sup>. Interviewees working in different types of buildings (CG I to VI building) emphasised the combination of different buildings types that contributed to the current successful waterfront. However, at the same time, they thought the existence of the waterfront was equally an important factor for success. In particular, the panoramic waterscape, openness, proximity to the water and physical accessibility were frequently mentioned in the interview. Unlike the results of the user questionnaires, the outcome of the interviews demonstrated some hidden dimensions of the success of the current waterfront and the factors sustaining the success, such as the long-term redevelopment process; the management of each building, details of political leadership by key people; and the organisation of events and programmes inside and outside buildings.

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<sup>27</sup> Martin Millspaugh (Chief executive officer of Charles Centre-Inner Harbour Management Inc., from 1965 to 1985), James Rouse (founder of The Rouse Company), and William Donald Schaefer (Mayor of Baltimore City from 1971 to 1987) were often mentioned.



# Chapter 7

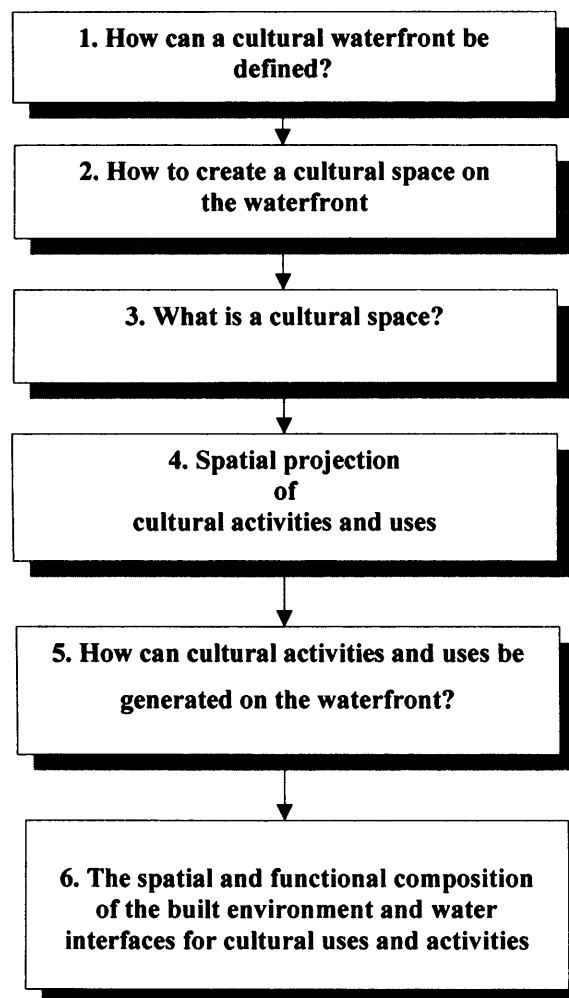
## Conclusions: designing the cultural waterfront

This discussion chapter gives an overview of the findings from each chapter of the thesis with a particularly focus on the case study area and the main implications. From the synthesis of the findings, seven broad theoretical themes are introduced and discussed to address the research aim. In section 7.1, a definition of the cultural waterfront is provided on the basis of the key findings. In section 7.2, the image of the cultural waterfront and the spatial characteristics of the cultural waterfront are discussed. In section 7.3, the characteristics of the design process for cultural waterfronts is discussed, comparing the various cases of waterfront redevelopments that have been examined in this study. In section 7.4, the spatial and functional characteristics of the five realms of waterfront space are discussed in the context of cultural uses and activities. In section 7.5, the interrelationship of the five components that make the cultural waterfront – urban waterfront form, built environment, users, events and programmes and water will be discussed with reference to various successful and unsuccessful cases. The notion of designing a ‘waterscape environment’ and ‘waterfront attraction’ introduced important theoretical findings in the thesis, showing the various layers of evidence from the case study and the literature review of worldwide waterfront redevelopments. The conclusion section summarises the whole research, key outcomes and their application to designing cultural waterfronts from a theoretical and practical perspective. It also gives recommendations for further research work.

## 7.1 What is meant by a cultural waterfront?

The literature review identified the existence of the cultural waterfront (Figure 5.4), which the case study revealed the characteristics of cultural waterfronts. Due to the complexity of the notion of culture, the cultural waterfront is hard to define. It has therefore been necessary to review several fundamental steps to develop a definition (Figure 7.1). However, a clear understanding of the notion of the cultural waterfront is necessary to provide a basis to develop theoretical themes in relation to designing the cultural waterfront.

**Figure 7.1** A process for defining the cultural waterfront



### 7.1.1 Meaning of a cultural space?

In chapter 2, the characteristics of post-modern cultural geography were reviewed. Key characteristics of the post-modern paradigm were identified, including those symbolised by the 'cultural turn' and 'spatial turn'. To facilitate an understanding of the post-modern paradigm, the notion of culture was examined. However, the notion of culture is characterised by 'complexity' and 'diversity' and involves influences from various disciplines. Because of

this, defining 'culture' is difficult although 'culture' becomes a key constituent when understanding and designing post-modern urban space.

The results of the literature review of the worldwide waterfront redevelopment phenomena showed various types of waterfronts and cultural waterfronts. The case study demonstrated the formation of physical and non-physical occupants of the cultural waterfront in 'time' and 'space'. Thus, 'the notion of culture space' and 'cultural waterfront' can be explained by the interrelationship of these components:

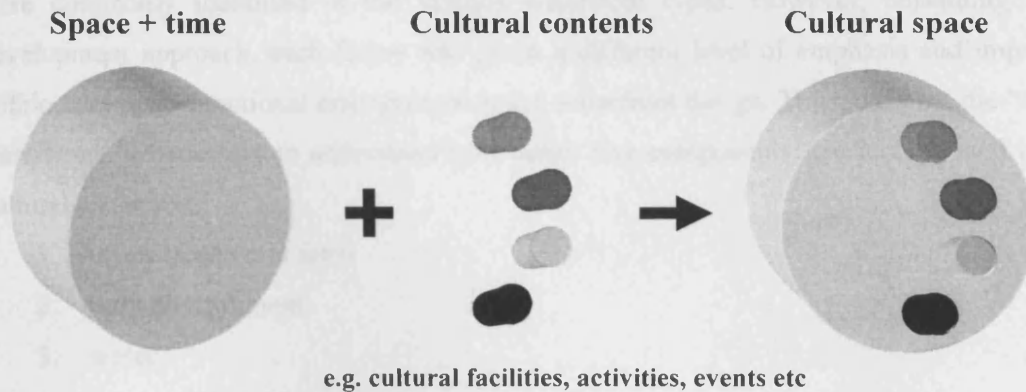
1. space
2. time
3. occupants (e.g. human beings, built environment, and events)

Lefebvre (1987, 1991, 2004) introduces the concept of social space, the space of social life, of social and spatial practice (Madanipour, 1996). He argues that social space is a social production and every society and mode of production produces its own space. In a similar way, the notion of 'cultural space' can be understood by 1) the spatial projection of cultural products and 2) experiencing the projected cultural products in specific space and time. Thus, cultural space can be defined by the place where these two factors take place.

However, the process of cultural production and cultural experience is strongly defined by the occupants of the space and time. In addition, 'cultural production' and 'cultural experience' can be maximised by the occupants, especially by the spatial and functional arrangement of the built environment, human activities, and events/programmes in space and time because the notion of cultural space is embedded in their physical setting, activities, and events and programmes. As a result, the definition of cultural space can be understood by an investigation of 'its contents' in space and time. Therefore, creating cultural space has much to do with creating its contents.

For example, as the observational analysis in the case study demonstrated, generating cultural activities was strongly related to the function of the built environment such as the Aquarium, the Maritime Museum, the Science Centre, and the Harbourplace. In other words, creating cultural space is strongly related to the spatio-functional composition of the contents, such as the physical setting of the built environment, the user's activities, and events. Thus, 'the notion of cultural space' can be defined by the spatial projection of the cultural contents in time and space (Figure 7.2).

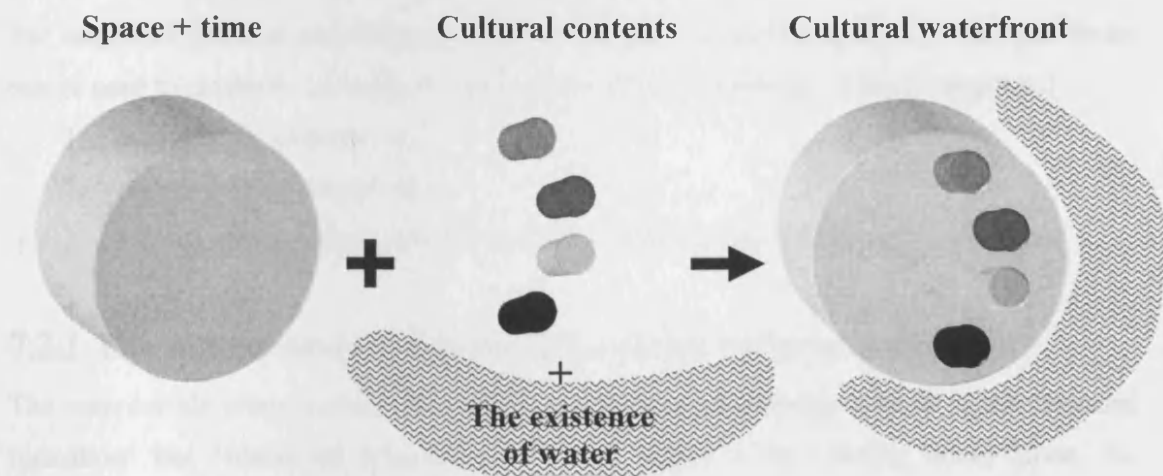
Figure 7.2: The notion of a cultural space



### 7.1.2 Meaning of a cultural waterfront?

How can we define the 'cultural waterfront' from the notion of cultural space? The existence of water gives a unique spatiality to the form of the cultural waterfront. Water itself does not give a direct cultural meaning but it provides significant potential for creating a cultural environment. As mentioned in chapter 3, the potential varies depending on the size of the water body and the characteristics of the spatio-functional interaction between the land and the water (Figure 3.18). In addition, water plays an important role in creating a socio-cultural public domain. The user questionnaire demonstrated that 97% of respondents thought that the water itself played an important role in creating a cultural environment. The evidence from the observational analysis showed that users' cultural activity patterns were in many respects directly related to water-related uses. Defining a cultural waterfront, therefore, must be understood by an additional content - the existence of the water – alongside the other cultural contents (Figure 7.3).

Figure 7.3: The notion of a cultural waterfront



From the mapping of worldwide waterfront redevelopments in section 4.3, five components were commonly identified in the various waterfront types. However, depending on the development approach, each factor was given a different level of emphasis and importance within the spatio-functional arrangement in the waterfront design. Thus, defining the ‘cultural waterfront’ is necessary to understand how these ‘five components’ are incorporated into the cultural waterfront:

1. urban waterfront form
2. built environment
3. water
4. events and programmes
5. users

In addition, understanding the cultural waterfront needs an ‘inductive’ rather than a ‘deductive’ approach when interpreting the results of the observational analysis and applying these to the notion of the cultural waterfront. This is due to the nature of the complexity of the notions of culture and the cultural waterfront. In other words, what is happening (phenomenological) in the relationship between the above five components on the cultural waterfront provides a better understanding to define the cultural waterfront rather than telling us what a cultural waterfront is (ontological). In short, a definition of the cultural waterfront can be comprehended by a close examination of the five components’ interrelationship in shaping the cultural waterfront and each factor’s role in the formation process of the cultural waterfront.

## **7.2 The image of the cultural waterfront**

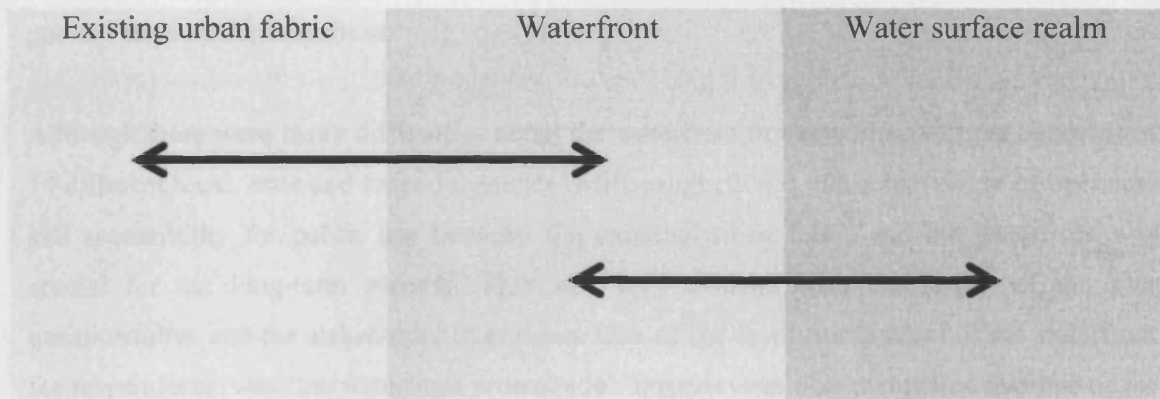
The empirical findings and evidence from the research, especially those from the case study, can be used to establish the characteristics of the cultural waterfront in three categories:

1. macro-scale characteristics
2. micro-scale characteristics
3. overall spatio-functional characteristics of the cultural waterfront

### **7.2.1 The macro-scale characteristics of the cultural waterfront**

The macro-scale characteristics of cultural waterfronts are strongly related to the ‘physical formation’ and ‘functional integration’ of three realms – the existing urban fabric, the waterfront and the water surface realm (Figure 7.4).

**Figure 7.4:** Two boundaries to be opened up for the successful cultural waterfront



The ten stages of the redevelopment process described in chapter 4 (Figure 4.61) and the analysis of the transformation of the case study area in section 6.1 showed that the successful waterfront was characterised by its ‘physical accessibility’ and ‘functional integration’ with the existing urban fabric in the early redevelopment stage. This involved opening up two boundaries (Figure 7.4): the boundary between the existing urban fabric and the waterfront; and the boundary between the waterfront and the water.

However, the opening up process was also accompanied by the functional integration of the built environment with the existing urban fabric, the waterfront and the water. In this way, the waterfront becomes an important buffer zone between the existing urban fabric and the water, where various functions are recognised,. The main macro-scale characteristics of the cultural waterfront in terms of a spatio-functional perspective are:

1. open accessible infrastructure for public use between the existing urban fabric and the water
2. pedestrian-only, wide and continuous waterfront promenade
3. interactive water’s edge in terms of both the land and the water
4. water quality

#### **(1) Openness and accessibility for public use**

According to mapping of the waterfront redevelopment phenomena (section 4.1 and Appendix C) and the evaluation of waterfront redevelopments (section 4.2), successful waterfront redevelopment has 10 characteristic redevelopment stages. A critical one was recapturing the waterfront as a public domain to link the existing urban fabric to the waterfront. The redevelopment process in the case study area provided a typical example. In addition, the user questionnaires and stakeholder interviews showed the importance of the public use of the waterfront in the success of the current waterfront. Above all, the process of obtaining 7.5

miles of the waterfront promenade during the long development process exemplified the public vision of the waterfront.

Although there were many difficulties about the waterfront to overcome, with the concerns of 14 different local, state and federal agencies (Millsbaugh, 2003), the achievement of openness and accessibility for public use between the existing urban fabric and the waterfront was crucial for the long-term success. This was very evident from the results of the user questionnaires and the stakeholder interviews. One of the favourite features of the waterfront for respondents was 'the waterfront promenade'. Interviewees also mentioned that one of the most important achievements in the redevelopment process was the continuous and very well connected 7.5 miles of waterfront promenade.

The transformation of the Embarcadero Centre waterfront in San Francisco after the demolition of the elevated highway which bisected the downtown and the historic waterfront is a good example of how accessibility and openness influences the image of the waterfront (Figure 4.64). Similarly, Boston's initiatives to connect the historic downtown to Columbus Waterfront Park, which was also bisected by an elevated highway that blocked visual contact with the water, clearly demonstrated the importance of openness and accessibility for public use (Figure 4.65). The literature review of waterfront redevelopments also illustrated that accessible public space improves the quality of waterfront space. Similarly, the success of cultural waterfronts depends on how an accessible public domain accommodates people, events and activities. Thus, public accessibility with openness to the waterfront from an existing urban fabric is a fundamental characteristic of the cultural waterfront.

## **(2) Pedestrian-only, wide and continuous waterfront promenades**

The successful cultural waterfronts had pedestrian-only waterfront promenades which were characterised by ample width and continuity along the water's edge realm. Gehl (1994:8) argued that "great cities have great streets". According to evidence from this research, it is quite true that successful cultural waterfronts have extensive waterfront promenades. Like cities, attractive pedestrian-only promenades with panoramic waterscapes were an essential element to be considered for the successful cultural waterfront

Like Yokohama MM21, Darling Harbour, and Baltimore Inner Harbour, the successful cultural waterfront had a continuous, wide and pedestrian-only promenade connecting different types of buildings, open space, and attractions along the waterfront. Many cases in chapter 4 illustrated how the creation of the waterfront promenade became a cornerstone for success. For example, the case study clearly built an exemplary model of how the continuous



waterfront promenade contributed to the long-term success of designing the cultural waterfront. In section 6.6.3, the interview with the director of the Waterfront Promenade Partnerships demonstrated ‘how they achieved the 7.5 miles of waterfront promenade in the face of the threat from development pressure’, and ‘how the promenade affected the success of the current cultural waterfront’.

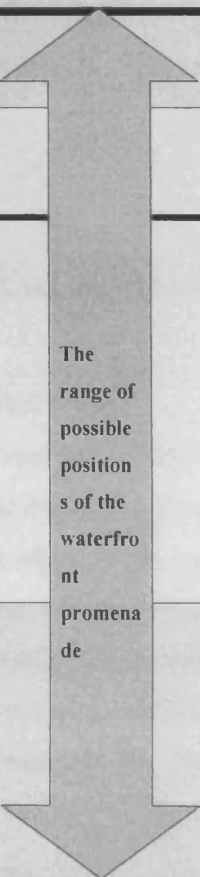
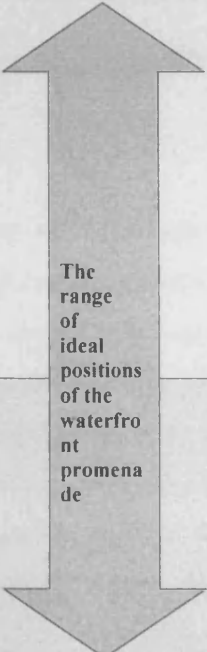
Christopher Alexander (1987: 74) argued that one of the failures of modern urban development has been that the “road network comes first, buildings come second, and pedestrian space comes third. The correct sequence is just the opposite: pedestrian space first, buildings second and roads third”. The literature review of waterfront redevelopment also clearly showed that the above rule can be applied in the same way. For the successful cultural waterfront, pedestrian-only, continuous, and wide waterfront promenades come first, buildings come second and roads last.

However, two additional factors have to be taken into account for the successful cultural waterfront. One is the position of the waterfront promenade in the five realms of the waterfront because, according to the research, the quality of the waterfront space for cultural uses and activities was directly related to the location of the promenade. Figure 7.5 demonstrates the possible locations and ideal positions identified from the literature and the case study. Most successful cultural waterfronts had pedestrian-only promenades situated between the foreground waterfront and the water’s edge realm. Darling Harbour in Australia, Minato Mirai 21 in Yokohama, and the case study area all had pedestrian-only waterfront promenades at the water’s edge realm. The evidence from the case study, creating waterfront promenades in the realm of the water’s edge was a fundamental formula for success after opening up the waterfront between the existing urban fabric and the waterfront

The other factor is that the promenade was needed to provide a supplementary quality to enhance the cultural waterfront after it was located in its ideal position. Well- located promenades often had a lack of continuity and ample space to sustain people’s activities or accommodate the various events and programmes. This was particularly the case for large-scale waterfront redevelopments. For example, Rowe’s Wharf in Boston has a continuous promenade alongside luxury housing and condominiums, but it is narrow and there is not enough space for congregation and activities. It seems that the promenade belonged to the front yards of the houses. In a sense, it did not fulfil the true meaning of a promenade for public use (Figure 7.27). In addition, visual accessibility and openness between downtown and the water was almost blocked by high-rise buildings. Thus, the supplementary qualities for a waterfront promenade require:

- openness in both directions from the water to the existing urban fabric
- ample space to accommodate activities
- visual contact with the waterscape
- functional connection to the built environment

**Figure 7.5** The ideal location of the promenade for the successful cultural waterfront

The five realms of the waterfront		The position of the waterfront promenade	The impact of the location
Inland			<ul style="list-style-type: none"> <li>■ no sense of the waterfront</li> <li>■ mostly blocked by buildings</li> </ul>
Background and waterfront realm	back		
	front		<ul style="list-style-type: none"> <li>■ less sense of the waterfront</li> <li>■ mostly blocked by buildings</li> <li>■ accessibility to the water is possible but limited</li> </ul>
Foreground and waterfront realm	back		
	front		<ul style="list-style-type: none"> <li>■ physical, visual and psychological accessibility is good</li> <li>■ but limited depending on the location of buildings and the spatial arrangement of the built environment</li> <li>■ high sense of the waterfront but limited depending on distance and the spatial arrangement of the built environment</li> <li>■ (e.g. New York Fulton Street Pier 17, Embarcadero Centre in San Francisco, Genoa Old Port, Singapore Boat Quay)</li> </ul>
Water's realm	edge	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>The range of possible positions of the waterfront promenade</p> </div> <div style="text-align: center;">  <p>The range of ideal positions of the waterfront promenade</p> </div> </div>	<ul style="list-style-type: none"> <li>■ the ideal location for the waterfront promenade</li> <li>■ Tremendous physical, visual, and psychological accessibility</li> <li>■ Very high sense of the waterfront</li> <li>■ (e.g. Baltimore Inner Harbour, Sydney Darling Harbour, Yokohama Minato Mirai 21, Bristol Harbour, Cardiff Bay in Wales, Battery Park City, Barcelona, and Cosmo Square in Osaka)</li> </ul>
Water surface realm			

Source: Author (2004)

The combination of these two aspects – the location of the promenade and its supplementary qualities – must be achieved and have priority over any other elements in the redevelopment process. The ‘Critical Area Programme’ in the case study showed the importance of the above

[illegible]

The successful cultural waterfront was also characterised by an interactive water's edge between the land and the water, through water-related structures, facilities and buildings such as piers, marinas, bridges, ships and maritime museums. They are usually located at the water's edge. The importance of the interactive water's edge lies in its potential as a magnet to attract activity, a visual pleasure, an activity node, and a location for leisure & entertainment facilities and water-related cultural buildings. The research found two important aspects of the interactive water's edge on the cultural waterfront. One was the 'physically' interactive water's edge. The other was the 'functionally' interactive water's edge.

In terms of its functional aspect, it is related to activities such as marinas, water taxis, cruise ships, historic tall ships and boats that depart and arrive along the water's edge. How these floating objects at the water's edge enhanced the vitality and created a cultural ambience in users' minds was clearly identified by the observation at the international Tall Ships exhibition in the case study area during the 4<sup>th</sup> July Sailabration day (Figure 6.69, 6.83 and 6.121).

It demonstrated that anchoring the four international Tall Ships for five days along the water's edge dramatically transformed the visitor numbers, the use patterns of waterfront spaces, and the overall image of the waterfront. Also, the user questionnaires showed that the historic Tall Ships at the water's edge became floating landmarks in users' perceptions. In addition, they gave a great sense of a historic waterfront in people's minds, although the redevelopment process of the Inner Harbour had used a very 'clean slate approach' and created a 'tabula rasa' in many respects (Figure 6.10).

Furthermore, as the user questionnaires showed, many respondents' favourite and most impressive things were strongly related to floating ships and objects along the water's edge. The level of vitality of the water's edge played an important role in generating activities, congregation and shaping the lively image of the waterfront for users. Consequently, it directly affected the success of the cultural waterfront.

The case study showed empirical evidence of how the interactive water's edge influenced a diverse level of usage patterns along the water's edge. Figure 7.7 demonstrates the overall function of the water's edge and its usage pattern in the case study area and on other waterfronts which were reviewed in chapter 4. Their various functions along the water's edge enhanced the overall sense of the cultural waterfront and its vitality.

### **Water quality**

The results of the observation (Figure 6.124), user questionnaires and stakeholder interviews (Figure 6.151) demonstrated that water quality was a key concern in sustaining the cultural waterfront and its success. The operation of garbage ships on the water from morning to late afternoon to clean rubbish and the attempt to install equipment to intercept the trash between Chesaapeake Bay and the case study area shows the city's concerns to improve water quality. The John Falls Aeration Project in front of the Public Works Museum also demonstrated another example. In many respects, good water quality and clean water are essential for the success of any cultural waterfront development.

**Figure 7.7:** the functional interaction of the water's edge in the case study area and on other waterfronts ( O : exists Δ : partly exists X: non-existent)

Level of congregation	Level of activity	Major Function	Facilities promoting interaction in Baltimore Inner Harbour		New York Battery Park	Fulton Market New York	Minato Mirai 21 Yokohama	Boston Rowe's Wharf	Bristol Harbour	Cardiff Harbour	Darling Harbour in Australia
			Land	water							
Very High	Very High	- congregation magnet - Activity node	Continuous Promenade		O	X	Δ	Δ	Δ	O	O
Very High	Very High	- Major attraction - educational facilities - potential Maritime Museum - landmark		Tall Ships and the USS Constellation	X	O	O	X	Δ	X	O
Low	Low	- Transportation - visual attraction		Marina	O	X	Δ	Δ	Δ	O	O
High	High	- promenade - visual amenity		Jutting Pier	O	Δ	Δ	Δ	X	O	O
High	High	- promenade - activity node	Land pier		X	X	X	Δ	X	Δ	Δ
Very High	Very High	- Landmark - Major cultural facilities - Educational - Leisure & entertainment		Maritime Museum	X	X	O	X	X	X	O
Very High	Low	- Transportation - Visual attraction		Water taxi	O	X	O	O	O	Δ	O
Very High	Low	- Transportation - congregation magnet - Visual attraction		Cruise boats	O	X	O	O	X	Δ	O
Very High	Very High	- Leisure & Entertainment - congregation magnet - Visual attraction		Paddling boat	X	O	O	X	X	Δ	O
Low	Low	- Visual attraction		Private boat stop	O	Δ	O	O	O	O	O
Very High	Very High	- Leisure & entertainment - Gathering magnet - Activity node - Visual amenity		Floating café Outdoor Restaurant	X	X	X	X	X	O	O
Very High	High	- Landmark - congregation magnet - Activity node - Visual amenity		Cross-over bridges	X	X	O	X	X	Δ	O
High	High	- Educational - Visual amenity		Living foundation (e.g water-related educational programme)	X	X	X	X	X	X	O
Very High	Very High	- Leisure - Landmark	Observation tower		X	X	Δ	X	X	X	Δ

Source: Author (2004)

## **7.2.2 The micro scale characteristics of the cultural waterfront**

The micro-scale characteristics of the cultural waterfront demonstrate the interrelationship of three components of the built environment:

1. seven building types (cultural grade I to VII buildings)
2. open space
3. historic artefacts

A careful examination of the spatio-functional composition of these three elements actually provides useful empirical data that are embedded in the redevelopment process of the cultural waterfront's built environment.

### **7.2.2.1 Seven building types on the cultural waterfront**

#### **1) Cultural grade I to VII buildings**

Based on the results of the user questionnaires, seven different building types were ranked according to their contributions in creating the cultural waterfront although the rank might differ depending on respondents' socio-cultural background, age and gender.<sup>28</sup>

The research clearly shows that the successful cultural waterfront has a mixture of cultural grade I to VII buildings. These seven building types were strongly related to cultural experience -'cultural production', and 'cultural consumption' although each building type contributed in different ways to creating the cultural image of the waterfront. The observation of 11 sections in the case study showed that the mixture of different building types was a key factor in sustaining a constant flow and a critical mass of people, and diverse activities. As Gehl (1994:16) argued, "People are the key to an exciting, diverse and safe city to walk in and spend time exploring. These people are the 'market' for the city's public spaces; they provide the interest and the animation for its streets and plazas". It is no exception in the case of the cultural waterfront.

In other words, the mixture of different building types generates the use of the space. Activities created by different building types and secondary activities generated by the different building types spin off each other and give rise to a creative synergy effect on the entire cultural waterfront (Figure 6.52). Thus, to be successful, the cultural waterfront needs to have a mixture of different building types to maintain a cultural experience.

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<sup>28</sup> For example, in the user questionnaires, the ranking between cultural grade III (eating) and cultural grade V (shopping) is a typical example. The majority women put shopping-related buildings in third place, although male respondents put eating-related buildings in third place.

Regarding the mixture of seven different building types, the observational analysis found the importance of the time-dimension when considering the mix of different building types on the cultural waterfront. For example, on the one hand the CG I building sections such as the Aquarium section and the Science Centre section attracted significant numbers of visitors during the daytime. On the other hand, these sections became almost deserted after working hours in the evening. However, the Harbourplace section, consisting of CG II, III, IV building types near to the Aquarium and the Science Centre sections, sustained dining activities into the evening that lasted until 10pm. A similar effect took place in the Power Plant section. The Hard Rock cafe and ESPN zone in this section near to the Aquarium section, generate drinking and entertainment activities in the evening.

Hotel and residential building types also provided good examples. According to the observation, the waterfront was generally very quiet and inactive in the early morning but the hotel located in the foreground waterfront and background waterfront realms generated outdoor eating at restaurants and cafes, and walking along the waterfront with local people who exercised along the promenade. Interestingly, people from residential areas such as Federal Hill were the most important waterfront users during weekend evenings and event days, using the promenade for walking, relaxing, jogging and dining. Office blocks located at a walking distance from the waterfront is another good example. During the day, for office workers the waterfront was a valuable resource for relaxing and having lunch. They became a part of the critical congregation of people using the waterfront. In addition, when office workers left, there were more plentiful parking spaces for tourists and local people who visited the waterfront in the evening. In other words, the mixture of cultural grade I to VII buildings around the waterfront played a significant role in generating constant uses, congregation and different use patterns throughout the day. The mixture provides an important basis for creating cultural uses.

## **2) The formation process determining the seven building types**

Based on findings from the design process for the successful waterfront described in chapter 4 (Figure 4.61) and the in-depth morphological transformation of the built environment shown in the case study (Figure 6.23), it was demonstrated that the seven building types were formed 'step by step' or by an 'incremental process' over a long period of time on the basis of an agreed master plan, rather than in one 'big bang' approach. Alexander (1987) argued that the piecemeal characteristic of growth is a necessary condition for wholeness. Falk (1993a) also suggested that small-scale and 'incremental approaches' for the waterfront development were the most successful. In particular, the case study area showed an exemplary model for the 'step by step' and 'incremental' redevelopment approach that led to the formation of the



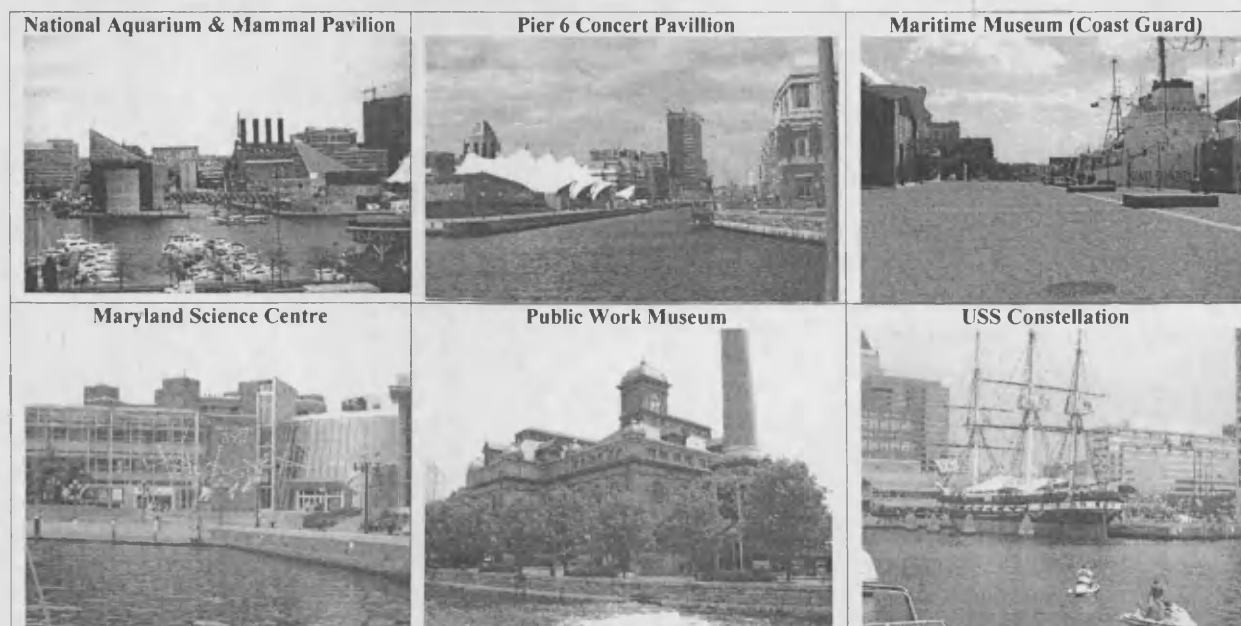
current composition of cultural facilities. It took more than half a century to create the current culturally oriented built environment of the waterfront (Figure 6.22).

The 'long-term', 'step by step' and 'incremental approach' is strongly related to the notion of the cultural waterfront, especially the successful ones. Long-term, small-scale redevelopment can more easily secure finance and reduce risk. In addition, the different redevelopment periods reflected different cultural and social backgrounds of the cultural waterfront over time. The transformation of the case study area from rundown, local public domain and national tourist attraction to international cultural destination explicitly demonstrated how a long-term, step by step and small-scale redevelopment approach creates cultural diversity.

### 3) Key cultural facilities as activity generators

One of the prominent characteristics of the cultural waterfront compared to other waterfronts was the existence of key cultural buildings. The research showed evidence that the successful cultural waterfront had cultural facilities that attracted a number of people, such as the Pier 17 shopping mall in Fulton Market; the Aquariums at Central Wharf in Boston and Darling Harbour in Sydney; the Maritime Museum in Yokohama Minato Mirai 21; and Queen's Quay in Toronto. The case study had multi-activity generators such as the Aquarium which (attracted about 1.5 million in 2002), Harbourplace (about 10 million annually), the Science Centre (about 650,000 in 2001), and the Public Works Museum and the Maritime Museum (about 150,000 in 2003) (Figure 7.8).

**Figure 7.8:** Major cultural infrastructure in the case study area



Although different cultural facilities generated different levels of visitor numbers and activities, the research identified that CG I (major cultural infrastructure), CG II (leisure and entertainment), CG III (eating) and CG IV (shopping) played a major role as activity generators. First of all, CG I buildings were the most influential generators in creating critical congregation. According to the user questionnaires, interestingly the landmark CG I buildings were influential in users' perceptions, creating a cultural environment because of their quality architectural design and year-round indoor programmes. In particular, creating a landmark CG I building is essential for the successful cultural waterfront. Six major characteristics of CG I buildings were identified:

1. gathering and attracting users
2. accessible physical setting with panoramic waterscape
3. each CGI building well connected by accessible promenades
4. landmarks and quality design
5. adaptive reuse of historic buildings and ships as major cultural infrastructure
6. diverse indoor programmes

Robertson (1995) also mentioned a 'Special Activity Generator', such as a convention centre, arena and stadium, for downtown redevelopment strategies. He (1995:433) argued that special activity generators "have three objectives. First the facilities should produce spill over benefits. Second the facilities should stimulate new construction. Third, the facilities can be located where it may revitalise a blight area." The case study clearly demonstrated how the above objectives were achieved. For example, the success of key activity generators in the case study impacted on the consecutive construction of hotels and other accommodation during the 1980s, revitalising the surrounding waterfront.

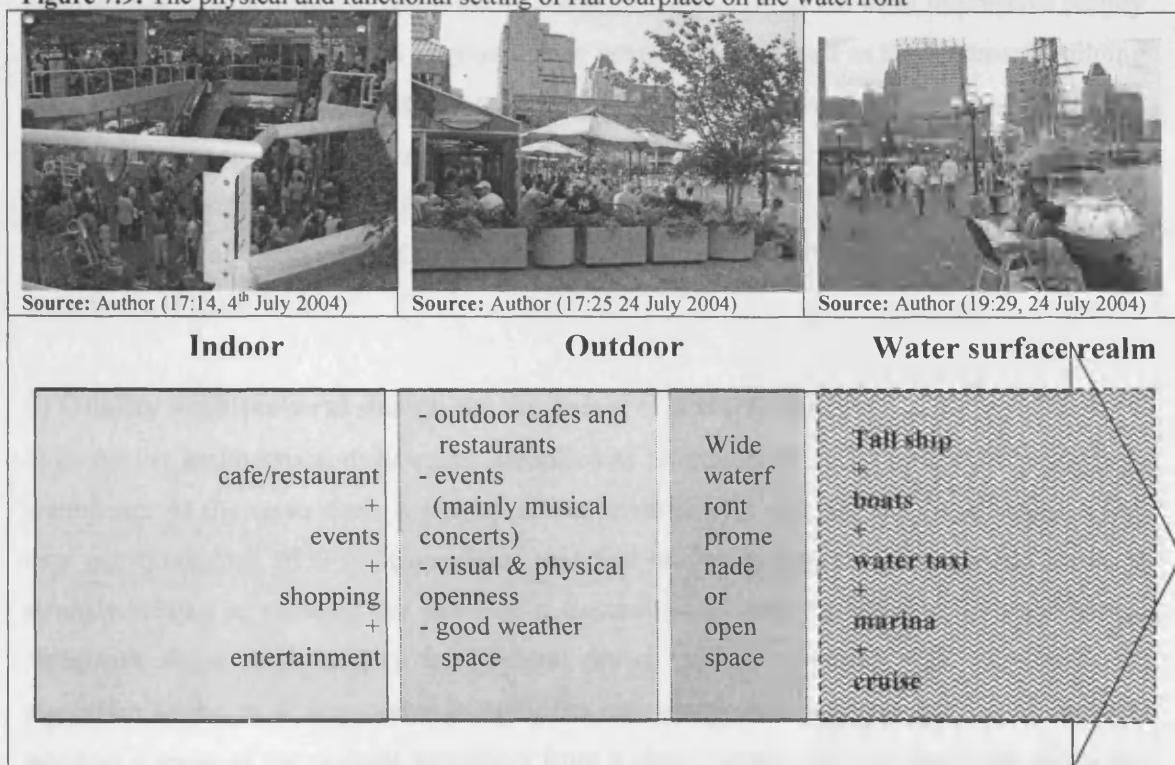
#### **4) Integrating a mixed-use approach with a sense of the waterfront**

According to research, the successful cultural waterfront houses a mixture of different cultural facilities and all have water-oriented spatial arrangements. Rowley (1996) argued that the notion of mixed-use development is composition of different functions of buildings and the spatial arrangement of the built environment that accommodates people, their activities, buildings, streets, open spaces and parking spaces etc. He emphasises the importance of the physical layout of the built environment to house various functions and activities in the process of achieving mixed-use development. As the case study showed, the integration between the spatial arrangement of seven building types and their mix of uses along with their interfaces with water was an important factor to be considered for the cultural waterfront. Due to the nature of the water as a magnet, the way in which the water's existence is integrated into the mixed-use built environment is critical for success. For example, the success of

Harbourplace, with uses consisting of eating, shopping and entertainment, is attributed to the mixed-use approach and the application of the notion of the 'festive marketplace'. At the same time, success is also due to the location of Harbourplace near to the water, where the notion of a festive marketplace can be realised because people are naturally drawn to water. The interview with the marketing director of the Harbourplace and the evidence of what the Harbourplace has achieved confirm this factor.

In other words, an important factor to guarantee success for a mixed-use development on the waterfront, compared to inland, is to ensure that a sense of the water is provided within the mixed-used spatial arrangement of the seven building types in the design process. For instance, the physical structure of Harbourplace between the building and the water illustrates the successful formula with a spatio-functional sequence from indoor and outdoor space to the water, providing visual openness and a panoramic waterscape (Figure 7.9).

**Figure 7.9: The physical and functional setting of Harbourplace on the waterfront**



### 5) Time-dimension integrated into the mixed-use approach

Apart from a consideration of the spatial arrangements of the seven building types within the mixed-use approach, another important dimension is the arrangement of the mixed-use of seven building types in terms of their time use over. As the use patterns of the 11 sections in the observation showed, the successful cultural waterfront is characterised by constant use and

evening activities. The flow of people lasts until 10 pm on weekdays, weekends and event days. The composition of different cultural grade buildings from CG I to CG VII along the waterfront played a significant role in sustaining the waterfront until late at night. In short, it is important to consider both the spatial and time dimensions of the mix of uses.

#### **6) Cultural facilities combined with events and programmes**

Cultural grade I to V buildings on the cultural waterfront are characterised by generating indoor and outdoor events and programmes. The observation analysis showed that CG I to V buildings operated constant indoor programmes to attract people. In particular, distinctive indoor programmes in CG I buildings as major cultural infrastructure were found, such as the Aquarium, the Science Centre and the Maritime Museum, which attracts various age and user groups (Figure 6.122).

The results of the user questionnaires also showed the importance of organising events and programmes. The majority of respondents chose the Aquarium as the most impressive facility on the waterfront because of its various indoor programmes as well as the landmark building design (Figure 6.142). The literature review also showed that after the success of the world-class Aquarium in Baltimore in terms of managing indoor programmes and events, other waterfront redevelopments, in cities such as Osaka Bay in Japan, Darling Harbour in Australia and Genoa in Italy, adopted the aquarium as a model to follow in the redevelopment of their waterfronts (Figure 4.68).

#### **7) Quality architectural design on the cultural waterfront**

High quality architectural design was identified as an important characteristic of the cultural waterfront. At the same time, it played an important role in creating a cultural image. From user questionnaires, 91% of respondents said that unique architectural design and form are strongly related to creating the sense of a cultural waterfront. In addition, they mentioned ‘landmark shape’ and ‘quality architectural design’ when answering why they chose the Aquarium as the most impressive thing in the case study area. It seems that people initially perceive a sense of the cultural waterfront from a visual perspective and then from direct and indirect experiences during a visit to the waterfront. The mixture of high quality architectural design along the waterfront enhanced the cultural sense and created a panoramic waterscape (Figure 7.10).

**Figure 7.10:** The unique architectural design of different building types in Baltimore Inner Harbour



#### **7.2.2.2 Public space on the cultural waterfront**

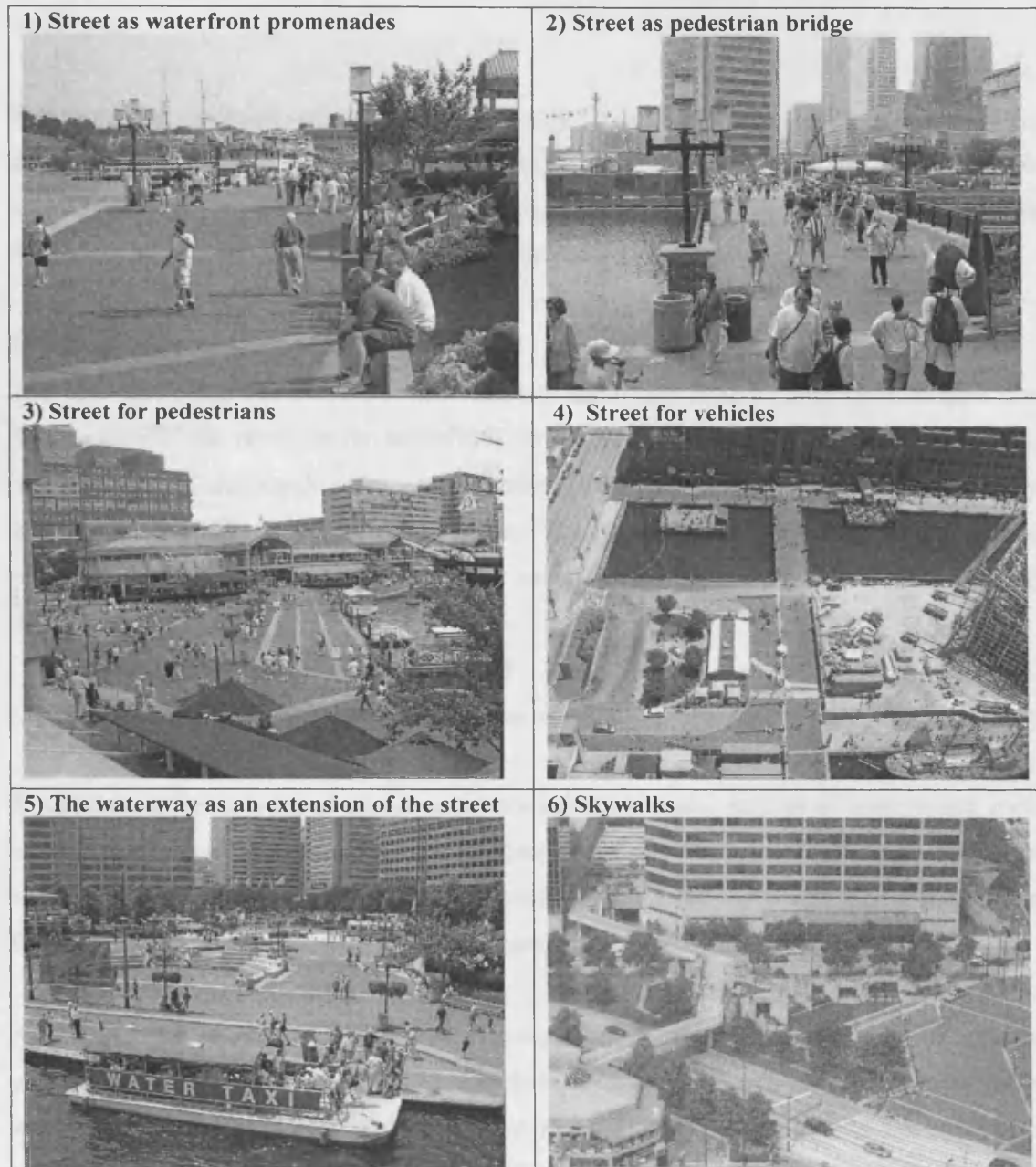
As mentioned in chapter 3, Krier (1984) argued that the urban built environment can be explained by two basic components – the ‘street’ and the ‘square’. Public space on the waterfront also consists of these two components. However, unlike inland areas, these two components are truncated at the water’s edge. As a result, this creates a unique form of street and square and influences use patterns. The relationship between this ‘unique form’ created by a ‘sudden cut’ at the water’s edge and ‘the water’ is sufficiently important to be considered in the design process.

##### **1) The street on the cultural waterfront**

According to the study, in general the successful cultural waterfront has highly accessible street patterns for ‘pedestrians’, ‘cars’ and ‘water transportation’ from the existing urban fabric to the waterfront and to the water. It has also a pedestrian-oriented street structure and highly accessible water surface realm for ships, boats, cruise services and water taxis. Six modes of street system were identified on the cultural waterfront (Figure 7.11).

The morphological analysis of the case study area showed that 25 streets meet the waterfront at right angles, providing accessibility with visual contact for cars and pedestrians (Figure 6.39). From the observational analysis, the grid pattern provided effective pedestrian flow and accessibility by car from the downtown area to the water, unlike historic and irregular European waterfronts such as in Genoa and Venice (see Figure 6.36).

**Figure 7.11:** Six types of street identified in the case study area



The literature review in chapter 4 and the case study showed that the successful cultural waterfront has a 'wide, 'continuous' and 'pedestrian-only' waterfront promenade. The more pedestrian-oriented the street pattern, the more the cultural waterfront has an opportunity to be successful. User questionnaires also supported the importance of this because many respondents' favourite was 'the pedestrian-only waterfront promenade' (Figure 6.134). Respondents considered the two-dimensional promenade as an important landmark, like the three dimensional forms of the Aquarium and the Science Centre building. The observation analysis found that one of the prominent characteristics was the use of waterways as an extension to the street system. In addition, user questionnaires demonstrated the importance of

mobile floating objects in creating a sense of the waterfront and an image of the cultural waterfront.

However, the location of the pedestrian-only waterfront promenade is crucial. As demonstrated in Figure 7.5, the ideal range of location for the waterfront promenade was between the water's edge and the foreground waterfront realm. The cultural waterfront tends to be more successful when the promenade is located near to the water.

## **2) The square on the cultural waterfront**

The case study showed that the water surface realm provided an important location for floating objects that revitalise the waterfront. At the same time, psychologically and visually, it attracts people. Although human accessibility to the water is extremely limited in many ways, it functions like a psychological square. Thus, it is important to see the water surface realm as a different type of square on the waterfront. Based on this, the square has two different modes:

1. the hard square (the squares on land)
2. the fluid square (the water surface realm itself)

In addition, different types of square such as small-scale parks, patches of green space, parts of the waterfront promenade, and piers are identified. One of the prominent characteristics of squares on the cultural waterfront was 'openness' to both the water and the existing urban fabric at the expense of the sense of the enclosed characteristic of urban land squares.

Again, like the street, the location of various types of square is crucial on the cultural waterfront. 21 activity nodes, including squares in the case study area, are located between the water's edge and the foreground waterfront realm (Figure 6.45), linking the waterfront promenade and outer streets (Figure 6.46) with physical, visual and psychological connectivity to the water. At the same time, the activity nodes are directly connected to, and become parts of, the pedestrian-only waterfront promenade.

## **3) Parking space on the cultural waterfront**

The case study area has two distinctive types of parking space. One is for 'vehicles on land'. The other is for ships, boats, cruise ships, and water taxis on the 'water surface realm'. The provision of ample parking space played a significant role in attracting tourists and visitors to the case study area. There are 30,000 parking spaces within a 10 minute walk of the Amphitheatre at Harbourplace (Cooper, Robertson & Partners, 2003). User questionnaires



showed that the majority of people park their own cars near to the waterfront and then walk (Figure 6.145 and Figure 6.146).

The interview with the chief of urban design and land use in Baltimore Planning Department demonstrated that sufficient parking space was an important factor for success in drawing people to the waterfront. Three types of parking spaces are identified, which provide high accessibility to the waterfront for both vehicles and pedestrians:

1. private parking spaces (e.g. hotels and office buildings)
2. open parking lots for the public
3. large-scale garage parking spaces

These three types of parking space, located at the foreground and background waterfront realms, played an important role in creating capacity for accommodating car users – local people, tourists and visitors - and providing convenience.

#### **7.2.2.3 Historic artefacts on the cultural waterfront**

Architecture in the built environment is a durable object. Because of that, it always coexists in space with the old and the new (Rossi, 1984; Kostof, 1992). When the city has a wealth of historic artefacts, it gives symbolic and cultural richness to a place that reflects its past by creating a sense of place, attracting people and improving the vitality of the place. Moreover, recently, the modern use of historic buildings as offices, restaurants, cafés, and museums has become a popular urban regeneration strategy. In particular, as the literature showed, the industrial heritage of waterfronts often generates heritage products for recreational markets and tourism from the collective memory of the past (Tunbridge et al, 1992).

The study substantiated the success of the cultural waterfront, which is also strongly related to the adaptation of the historic context in the redevelopment process. The historic value of the waterfront played a significant role in creating a cultural sense of the waterfront and generating a critical mass of visitors. It was characterised by ‘contextualism’, which integrated the past with the present and the existing with the new, in the formation of the built environment (Figure 4.61). The observational analysis of the 11 sections during the event day (4<sup>th</sup> July Sailabration) clearly showed how the four historic Tall Ships from other countries and the existing USS Constellation enhanced the image of the cultural waterfront, the congregation of people, and liveliness.

From the literature review of the worldwide waterfront redevelopments in chapter 4 and the case study area, there was much evidence about on how historic artefacts played an important

role in creating successful waterfront redevelopment, especially at the cultural waterfront (Figure 4.67 and Figure 6.151), such as the transformation of the former dockyard into entertainment and leisure gardens in Minato Mirai 21 in Yokohama; the adaptive reuse of World War II battle ships and submarines into maritime museums in Baltimore Inner Harbour; changing the former oval basin into a grand open amphitheatre after reclamation in Cardiff; using former highway bridges as part of a pedestrian promenade in Darling Harbour; using industrial railway bridges as part of an important waterfront promenade and linear park in Yokohama; and the installation of a historic Lighthouse on land in Baltimore (Figure 7.12).

**Figure 7.12:** The historic Seven Foot Knoll lighthouse became a maritime museum for the public



The user questionnaires also demonstrated the strong linkage between the cultural waterfront and historic artefacts. In addition, the historic USS Constellation on the waterfront was identified as the most impressive floating historic object and dominant landmark although it is tiny compared to other buildings around the waterfront. The stakeholder interviews with people, who were involved in managing the adaptive reuse of historic artefacts such as the Maritime Museum and the Public Works Museum demonstrated how such artefacts attracted people and provided valuable resources for leisure, education and culture (see section 6.6.3). Three instances – 1) historic buildings, 2) historic objects, and 3) historic places – were identified in the adaptive reuse of historic artefacts. For the cultural waterfront, the research showed that historic floating objects such as ships, submarines, lightships, and battleships played an important role in generating a sense of the cultural and historic waterfront.

### **7.2.3 The spatio-functional characteristics of the cultural waterfront**

The examination of the macro and micro-scale characteristics of the cultural waterfront finally leads to the overall spatio-functional characteristics of the cultural waterfront.

In terms of macro scale characteristics of the cultural waterfront, physical ‘accessibility’ through the streets and open spaces between the waterfront’s built environment and the existing city is important and the foundation for the flow of people for the potential cultural activities and uses. At the same time, on the waterfront, spatial linkage between the water and the three components of the waterfront’s built environment is important to maximise the waterfront’s potential in creating the image of the cultural waterfront (Figure 7.13).

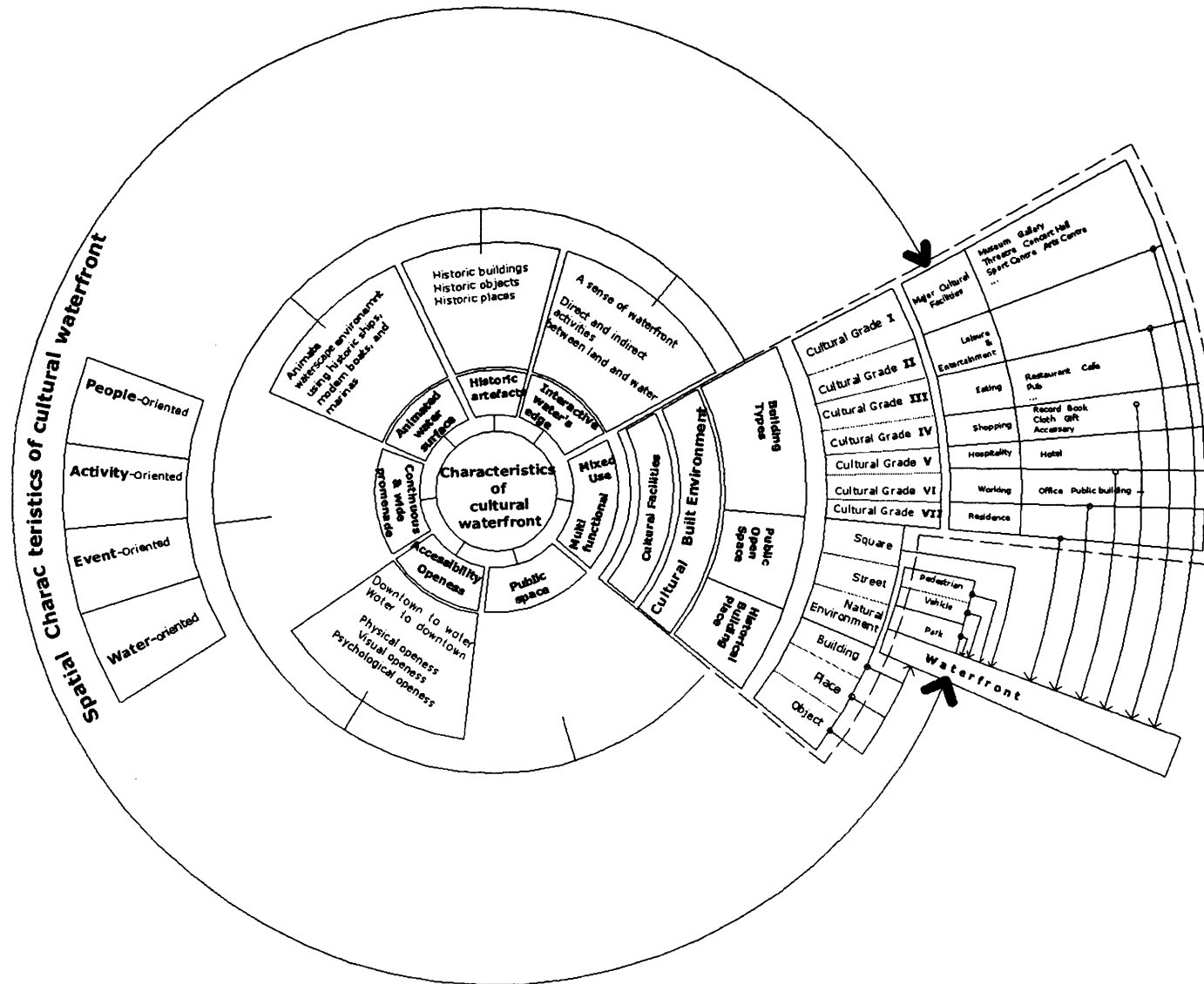
At the micro-scale, functional diversity – mixed use and multi-functions - of the building types (CG I to VII buildings) and a ‘water-friendly’ spatial layout of the three components of the built environment are essential to the successful cultural waterfront. In particular, the ‘people-oriented’ elements of public open spaces - such as squares, streets and parks - as linking components between the buildings, the water, and the existing city are identified as important factors. Simultaneously, the adaptive reuse of historic artefacts into modern use and the discovery of historic value on the waterfront’s built environment is necessary to create a rich cultural environment.

In short, based on evidence from the case study and international review of waterfront redevelopments, combining these two macro and micro-scale characteristics of the cultural waterfront suggests that the cultural waterfront has a ‘people-oriented’, ‘activity/events-oriented, and ‘water friendly’ spatio-functional structure (Figure 7.13).

### **7.3 The design process and the cultural waterfront**

According to the findings from the evaluation of the worldwide waterfront redevelopment phenomena (section 4.3) and the morphological analysis of the case study area (section 6.1), successful cultural waterfronts are characterised by a unique design process characterised by ten stages (Figure 4.61). The ten stages were also found in the transformation of the case study area. The in-depth investigation of the case study in chapter 6 provided detailed empirical evidence of each stage, synthesising different types of data using the multi-dimensional method (Figure 7.14). The evidence and findings drawn from the historical transformation of the case study (section 6.1) and the evaluation of waterfront redevelopments (section 4.2) clearly demonstrates several important characteristics in the relationship between the ten design stages and successful cultural waterfronts.

**Figure 7.13: The spatio-functional characteristics of the cultural waterfront:**



Source: Author (2004)

First, the nature of the 'early vision' is very important and critical to their short-term and long-term success. The cultural waterfront is likely to be successful when the waterfront space is considered an important public domain in the early (re)development stage. Visioning the waterfront as a public domain provides a critical foundation for accommodating cultural uses and activities as well as for adapting to cultural uses and activities in the future. Zukin (1994) and Hajer et al (2001) argued that public space is an important spatial corridor to produce and exchange socio-cultural values and identity in cities (Figure 2.16). As the case study shows, 21 activity nodes including squares and parks (Figure 6.44 and 6.45), wide open parks, and the continuous/wide waterfront promenade along the water's edge played a significant role in creating and sustaining cultural activities and uses.

In fact, the physical formation of the waterfront for public uses, which is characterised by 'openness' and 'emptiness' along the waterfront, provides the flow and congregation of people that generates vitality and diversity. The creation of the public domain with an open character provides users with the freedom to flow, congregate and exchange with each other, and, as a result, a cultural ambience is developed. In a sense, visioning the waterfront space as a public domain through its physical arrangement provides important places where cultural consumption and production take place. In addition, these public domains integrate with the water and local identity to create a strong sense of place which reflects a particular cultural identity.

Second, the image of the cultural waterfront is strongly related to the aesthetic experience of it. Many successful cultural waterfronts have a physical built environment that features high quality architectural design and a strong sense of place. The case study and international review showed that symbolic iconic buildings (e.g. the Aquarium in the case study area), high quality open spaces with public art, and conversion of historic buildings into modern uses in the development process creates a strong sense of cultural place and directly influences users' mental perception. Hence, aesthetic considerations are important factors in the design process and in shaping the two and three dimensional (e.g. places and buildings) aspects of the waterfront's built environment.

Finally, 'animating the waterfront' is particularly important through events and programmes alongside fixed cultural facilities. The case study demonstrated that constant management and developing indoor, outdoor and water-related events/programmes gave users visual, psychological and experiential diversity along the waterfront. Through observations, user questionnaires and stakeholder interviews, the case study showed how five types of events/programmes (Figure 6.119) influenced respondents' perceptions of the waterfront.

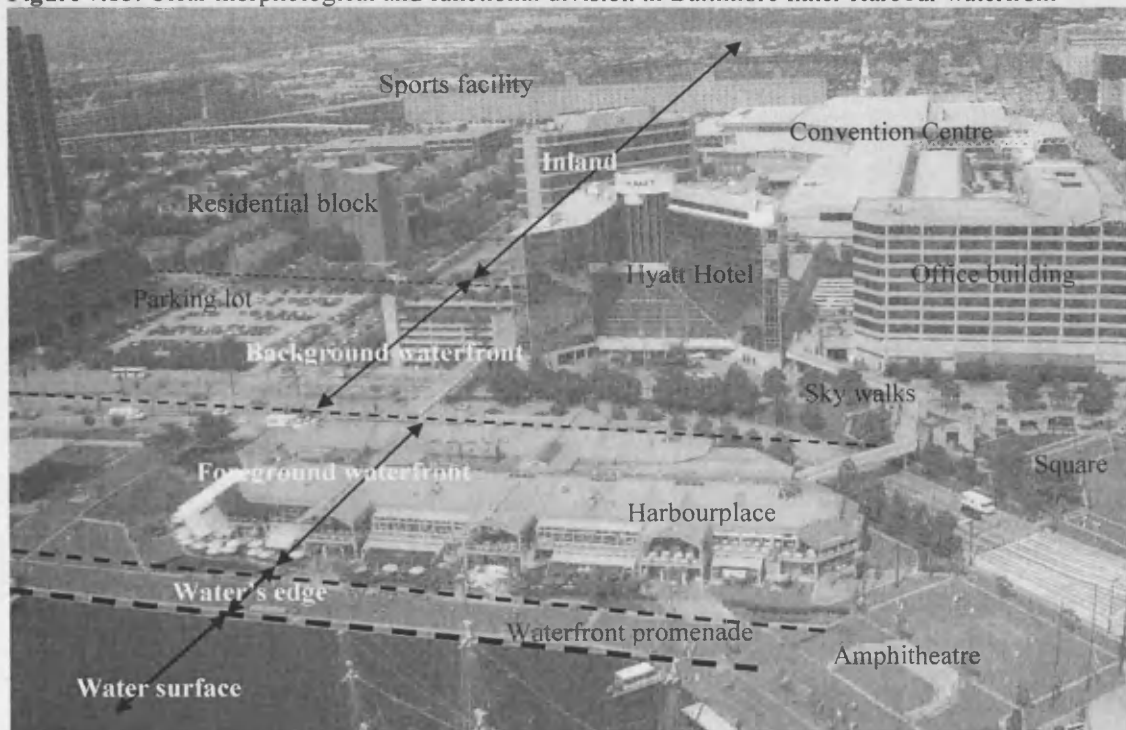
**Figure 7.14:** Evidence of the 10 critical stages and important new findings from the case study area

From the literature review of world-wide waterfront redevelopment phenomena (Chapter 4 and Appendix C)			From the case study in chapter 6	
Categories	10 stages	The details of the 10 stages	Evidence	Important new findings
Visioning the waterfront	Stage 1	<b>Visioning waterfront</b> place as an important public domain	<ul style="list-style-type: none"> <li>The master plan's concept – public use and local gathering place (Figure 6.9)</li> </ul>	
Creating accessible infrastructure	Stage 2	<b>Opening up</b> the waterfront from the existing urban fabric	<ul style="list-style-type: none"> <li>25 identified physically and visually accessible points between the existing downtown and the waterfront (Figure 6.39)</li> <li>Grid pattern</li> <li>Active pedestrian and vehicles network (see Figure 6.46)</li> <li>Pedestrian skywalks (Figure 6.42)</li> </ul>	<ul style="list-style-type: none"> <li>◆ The importance of the visual sense of the waterfront</li> </ul>
	Stage 3	<b>Creating</b> physical, visual and symbolic accessibility to the water		
Shaping the waterfront's built environment	Stage 4	<b>Planning careful land use patterns</b> – mixed-use and multi-functional	<ul style="list-style-type: none"> <li>The balanced combination of CG I to CG VII buildings (Figure 6.49)</li> <li>Vivid mixed use and multi-functional development (e.g. The Harbourplace)</li> </ul>	<ul style="list-style-type: none"> <li>◆ planning the water surface use patterns</li> </ul>
	Stage 5	<b>Contextualism</b> – considering the historic value of the waterfront place and its existing built environment	<ul style="list-style-type: none"> <li>The use of the historic place as a waterfront park (Figure 6.111)</li> <li>The use of historic floating objects (e.g. the maritime museum, Figure 6.151)</li> <li>The conversion of the historic power plant into entertainment facilities (Figure 6.81)</li> </ul>	<ul style="list-style-type: none"> <li>◆ the three components of historic artefacts – buildings, objects, and place</li> <li>◆ water itself as important historic artefact</li> <li>◆ the educational importance of water-related historic artefacts</li> </ul>
	Stage 6	<b>Provision for public open space and waterfront promenades</b> along the water	<ul style="list-style-type: none"> <li>Continuous and wide promenade located at the water's edge realm (Figure 6.30)</li> <li>Balanced distribution of 21 activity nodes (with open space) along the waterfront promenade (Figure 6.44 &amp; 6.45)</li> </ul>	
	Stage 7	<b>Designing a careful form and scale</b> of built environment	<ul style="list-style-type: none"> <li>The Aquarium, the Harbourplace, the Science Centre</li> </ul>	<ul style="list-style-type: none"> <li>◆ The existence of the 'waterscape environment'</li> <li>◆ Designing the 'waterscape environment'</li> </ul>
Animating the waterfront	Stage 8	<b>People, events and activity-oriented spatial composition</b>	<ul style="list-style-type: none"> <li>Ample green and open space</li> <li>7.5 mile waterfront promenade</li> </ul>	<ul style="list-style-type: none"> <li>◆ The concept of the 'waterfront attraction'</li> </ul>
	Stage 9	<b>A long-term, step-by-step and incremental approach</b>	<ul style="list-style-type: none"> <li>The formation of the built environment over 40 years</li> </ul>	<ul style="list-style-type: none"> <li>◆ The importance of incremental approach in shaping cultural waterfront</li> </ul>
	Stage 10	<b>Continuous programming of indoor/outdoor events and programmes</b>	<ul style="list-style-type: none"> <li>The benchmarking success of the festive marketplace</li> <li>The robust water-related activities</li> </ul>	<ul style="list-style-type: none"> <li>◆ Five types of events/programmes</li> </ul>

## 7.4 The five realms of waterfront space and the cultural waterfront

In chapter 3, the research developed the idea of five realms of waterfront space in an attempt to understand the spatial structure of waterfront space (Figure 3.20). In chapter 4, the international review demonstrated that consideration of 'the five realms' in the redevelopment process was crucial to success. In the in-depth case study, the cultural waterfront was characterised by a clear spatial division of the waterfront space (Figure 7.15) with a strong functional integration of the five realms. The effective design of the five realms became a physical foundation to accommodate cultural uses and activities. The case study illustrated how the interrelationship becomes embedded in the built environment throughout the redevelopment process.

**Figure 7.15:** Clear morphological and functional division in Baltimore Inner Harbour waterfront



Successful and unsuccessful examples of the interrelationship of the five realms of the waterfront space and their use patterns were identified in the literature review (Figure 4.63, 4.64 and 4.65) and the case study (Figure 7.16). In the case of Baltimore Inner Harbour, Darling Harbour and Barcelona waterfront, the clear division of the five realms and their different functions provided a foundation for the creation of the successful waterfront. However, waterfronts in Boston, Hong Kong and Seattle were identified as having poor spatial divisions and functional integration of each realm.



**Figure 7.16:** An example of the five realms of waterfront space in the case study area



The research showed that to create a successful cultural waterfront, more careful spatial design is needed than for other waterfront types because of the nature of the diversity and complexity of the cultural development, which was explained in chapter 2 (Figure 5.2 and 5.3). The case study provided an opportunity to examine the kind of relationship that exists between the five realms of waterfront space and cultural use of the waterfront. Three important characteristics were identified when designing the five realms and the cultural waterfront.

1. morphological characteristics of the five realms
2. functional characteristics of the five realms
3. the formation process of the five realms

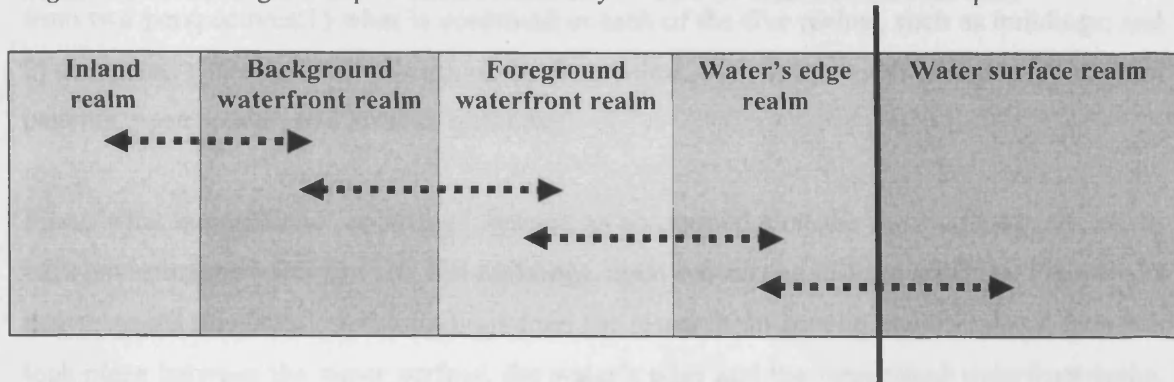
#### **7.4.1 The morphological characteristics of the five realms of the cultural waterfront**

Three main features were found. Firstly, as Figure 7.15 and 7.16 have already shown, a distinct spatial division of the five realms was identified, providing different functions in each realm. However, this division should not mean 'barrier' but 'place' to accommodate the three components of the built environment. Secondly, with the distinct spatial division of the five realms, there was also high accessibility between them, especially 1) by pedestrians. In addition, the five realms also provided 2) high accessibility by cars, although they had to be limited to certain realms. Furthermore, 3) high accessibility by boats and ships from the water surface realm was identified from the case study.

Pedestrian accessibility in the five realms had four different degrees (Figure 7.17). As the literature review in chapter 4 showed, accessibility by pedestrians depends on the evolution of the urban form and its scale, such as the organic form of Genoa waterfront and the grid patterns of the case study area. According to the case study, it is important to pay great attention to the four degrees of accessibility for pedestrians, providing visual and

psychological accessibility to the waterfront. However, the research also showed that many waterfronts, even successful cultural waterfronts, needed a careful design approach in the transition zone between background waterfront realm and foreground waterfront realm because this transition zone was often dominated by heavy traffic flow. This problem was also identified in the case study area, although there were skywalks to overcome this problem.

**Figure 7.17:** Four degrees of pedestrian accessibility in the five realms of waterfront space



In addition, accessibility for cars up to the background waterfront realm was found to be important because the cultural waterfront drew many different users from different geographical locations, who used different travel modes to get to the waterfront. Although vehicles are often considered a negative element when designing urban public space like waterfronts, a combination of both pedestrian and car accessibility is necessary for the successful cultural waterfront. Alexander (1997:271) mentioned:

It is common planning practice to separate pedestrians and cars. This makes pedestrian areas more human and safer. However, this practice fails to take account of the fact that cars and pedestrians also need each other: and that, in fact, a great deal of urban life occurs at just the point where these two systems meet (Alexander et al, 1977:271).

The observations in the case study also found that the ample space for parking (both in buildings and open parking lots) in the background waterfront realm provided substantial capacity for tourists from other cities. According to the interview with the Chief of the Land Use and Urban Design Department in Baltimore City's Planning Department, ample parking spaces played an important role in the success of the case study area (Figure 6.48). From the case study and literature review of waterfront redevelopments, the background waterfront was identified as the place where vehicles and pedestrian accessibility has to meet, but the foreground waterfront realm and water's edge realm were designated as pedestrian-only areas needing visual contact with the water. Finally, accessibility from the water surface realm to the land, especially access to the water's edge realm by water transportation was seen as important to the cultural waterfront. It provided transportation connecting the attraction while

also animating the water surface realm, enhancing the sense of visual vitality in the cultural environment.

#### **7.4.2 The functional characteristics of the five realms and the cultural waterfront**

The functional characteristics of the five realms of the cultural waterfront can be explained from two perspectives: 1) what is contained in each of the five realms, such as buildings; and 2) the spatial characteristics of each of the five realms, such as the width of streets, size, street patterns, open spaces, and level of openness.

First, 'what is contained' is strongly related to accommodating the three components of the built environment – CG I to CG VII buildings, open spaces and historic artefacts. Figure 7.18 demonstrated this based on the findings from the research. In general, major cultural activities took place between the water surface, the water's edge and the foreground waterfront realm. In other words, cultural facilities are mainly located in these realms. The research also showed that the 'water's edge realm' and the 'water surface realm' were generally dedicated to the public realm, with visual and physical openness to the water. The typical usage of the water's edge realm was the pedestrian-only waterfront promenade. In particular, the water surface realm played an important role in housing water-related activities. The foreground waterfront realm accommodates CG I to IV buildings, which are influential in creating the cultural waterfront through their quality architectural design. In addition, green space, squares and parks are mainly located in this area. However, 'the background waterfront' and 'inland' realms also played an important role in supporting functions such as hotels, office buildings, and parking spaces.

Secondly, the spatial characteristics of each realm were critical for the success of the cultural waterfront because to accommodate different functions in each realm needs an appropriate spatial arrangement and structure. For instance, a typical example is the location and spatial characteristics of the waterfront promenade, which is characterised by ample width, continuity and openness to the water, located in the water's edge realm. The case study showed that the above characteristics are an essential formula for the long-term success of the cultural waterfront. In particular, in the foreground waterfront realm, which houses major cultural facilities (usually CG I to IV), there is a need to consider in the design the spatial relationship of buildings, open space and historic artefacts. Above all, creating 'visual openness' and 'physical accessibility' to the water are key principles in creating the spatial structure of this realm.

### **7.4.3 Formation process of the five realms and the cultural waterfront**

The characteristics of the formation process of the five realms for cultural uses was strongly related to the design process (Figure 7.18). According to the findings from the literature review, successful waterfront redevelopment has 10 stages of design process in four categories (Figure 4.61). As section 7.3 demonstrated, the successful cultural waterfront has the same redevelopment process in different senses. In particular, the first two stages, 'visioning the waterfront' and 'creating accessible infrastructure', were commonly found in many different development patterns, such as residential, commercial, environmental and historic waterfronts. However, in the case of developing the cultural waterfront, the stage of 'shaping the waterfront's built environment' and 'animating the waterfront' had distinctive differences compared to other waterfront types because of the nature of the cultural development, which required more spatio-functional conditions than any other development pattern. In particular, 'animating the waterfront stage' was the most distinctive characteristic.

Creating the five realms in the redevelopment process in the context of the four categories was underpinned by evidence from the literature review in chapter 4 and the case study: the successful waterfront redevelopment process put a high priority on a careful design approach to the realms which are nearer to the water. Among the five realms, top priority was given in the order of, first, the water surface, then the water's edge, foreground waterfront, background waterfront and inland realms in terms of the spatio-functional arrangement of the built environment.

The priority in the design approach to the five realms might be different depending on the geographical structure between the water and the land. Due to this, there might be constraints on prioritising each realm in the waterfront redevelopment process. However, the research shows that in terms of spatial and functional arrangement it is unlikely to be successful when the priority is given to the background waterfront realm rather than the foreground waterfront realm, or the foreground waterfront realm rather than the water's edge realm. Although there were some successful cases in spite of a lack of consideration given to the closer waterfront realms in the redevelopment process, they are less likely to be successful in the long term. For instance, the case study area's top priority in the master plan in 1963 was given to public use of the waterfront, which was symbolised by the creation of the waterfront promenade along the water's edge realm. It was crucial to the current successful cultural waterfront. The Interview with the director of Waterfront Promenade Partnerships clearly demonstrates the role of the promenade for success in the case study area.

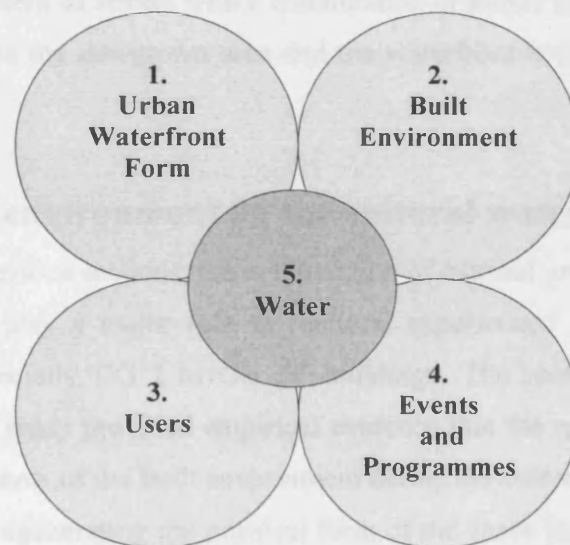
Figure 7.18: The characteristics of the five realms of the cultural waterfront in terms of morphological and functional characters, and formation process

	Inland	Background waterfront		Foreground waterfront		Water's edge	Water surface
		back	front	back	front		
1. Morphological character	<ul style="list-style-type: none"><li>Downtown area</li><li>Central Business District (CBD)</li></ul>	<ul style="list-style-type: none"><li>Outer pedestrian and vehicle road</li><li>Parking</li></ul>	<ul style="list-style-type: none"><li>Major location for vehicle access route</li><li>Transfer zone between inland and foreground waterfront</li></ul>	<ul style="list-style-type: none"><li>Location for major cultural facilities, Normally CG I to IV buildings</li></ul>	<ul style="list-style-type: none"><li>Physical and visual openness to the water</li></ul>	<ul style="list-style-type: none"><li>Visual physical openness</li><li>Continuous and ample promenade along water edge</li></ul>	<ul style="list-style-type: none"><li>Floating objects – ships, boats etc.</li><li>Extended - pier, marina</li></ul>
2. Functional character	<ul style="list-style-type: none"><li>location of everyday users</li></ul>	<ul style="list-style-type: none"><li>Location of cultural facilities, Normally CG V to VI buildings</li></ul>	<ul style="list-style-type: none"><li>Location of cultural facilities. Normally CG V to VI buildings</li><li>Generating users consistently during daytime and night time</li><li>Supporting facilities for cultural use of the waterfront (e.g. hotel)</li></ul>	<ul style="list-style-type: none"><li>Major location for cultural infrastructure</li><li>Transfer zone between water and background waterfront</li><li>Major activity zone and gathering place</li></ul>	<ul style="list-style-type: none"><li>Public domain for gathering with direct physical, visual and psychological contact</li></ul>	<ul style="list-style-type: none"><li>Public domain for gathering with direct physical, visual and psychological contact</li><li>Location for waterfront promenade</li></ul>	<ul style="list-style-type: none"><li>Location for historic ships, boats, water transportation, water-related leisure &amp; entertainment</li><li>Visual focal point</li><li>Psychological and symbolic open space</li></ul>
3. Formation process in master planning and redevelopment process	<div><div>Low Priority</div><div><div>1. The priority of careful design consideration for waterfront spaces</div><div>2. The direction of the top priority for public open space on the waterfront</div><div>3. One way direction in the redevelopment process from water surface and water's edge to foreground waterfront</div></div><div>High Priority</div></div>						
<div><div>Downtown</div><div>Supporting buildings and cultural facilities</div><div>The location of major cultural facilities</div><div>open space, park &amp; promenade</div><div>Water-related cultural activity zone</div></div>							

## 7.5 Five components that constitute the cultural waterfront

From the investigation of waterfront redevelopment phenomena in chapter 4, the research found five basic components that constitute various types of waterfronts (Figure 7.19). In addition, it found that the composition and emphasis of these components in the design process played an important role in creating a certain type of waterfront. Furthermore, the case study showed how these five components interacted with each other to create a cultural ambience on the waterfront. The research found that all these five components must equally be considered for the successful cultural waterfront compared to other waterfront types (Figure 5.2 and Figure 5.3).

**Figure 7.19:** Five basic components that constitute the cultural waterfront



### 7.5.1 Urban waterfront form on the cultural waterfront

The relationship between 'urban waterfront form' and the cultural waterfront lies mainly in the issue of accessibility to the water created by the street patterns, the arrangement of open space, and the layout of buildings between the downtown area to the waterfront. Accessibility is not only for pedestrians but also for cars and water transportation. The research shows that it is hard to imagine the image of the cultural waterfront without a flow of people and a variety of activities, facilitated by a highly accessible urban waterfront form.

As mentioned in section 3.4.1, the definition and scope of the waterfront is strongly related to 1) 'nearness' to the water. From the case study, nearness to the water with 2) high 'accessibility' contributes great opportunities to the successful cultural waterfront. In addition, user questionnaires identified that with nearness and high accessibility to the water, 3) 'the

level of visual contact with the water' through the spatial design of the built environment increases the sense of the cultural waterfront. These three are fundamental prerequisites during the design process in shaping urban waterfront form for the successful cultural waterfront .

In particular, the case study clearly demonstrated that the cultural waterfront requires high standards of these three factors because it has to accommodate diverse activity patterns and functions rather than any other development patterns, such as residential, ecological, commercial, historic, etc. The morphological analysis (section 6.2) showed that a geographic closeness and functional integration to the downtown area plays an important role in the current success. In addition, the observation analysis demonstrated that 25 identified access routes and four skywalks towards the waterfront provide high physical and visual accessibility. Overall, the grid pattern of streets with a combination of public space and physical and visual accessibility between the downtown area and the waterfront is important in designing urban waterfront form.

### **7.5.2 The built environment on the cultural waterfront**

As mentioned in previous sections, the combination of cultural grade I to VII buildings on the cultural waterfront play a major role in 'cultural experiences' - 'cultural production' and 'consumption', especially CG I to CG IV buildings. The morphological and observation analysis in the case study provided empirical evidence that the spatio-functional composition of the three components of the built environment define the cultural waterfront (section 7.2.2). "By arranging and regenerating the physical form of the space [and types of buildings], or by intervening in the programme of public space, we create new opportunities for particular activities" (Hajor & Reijndrop, 2001:73, Evans, 2001). The research also showed that a certain type of spatial arrangement of the built environment, such as the Harbourplace section in the observational analysis, provided a more productive cultural ambience. Opportunities for particular activities and uses require certain types of physical form and building types. The characteristics of waterfront space, such as the commercial, residential, and historic waterfront were often decided by the functions housed in the built environment, especially in the seven building types. . Although they may have similar conditions certain waterfronts are very successful while others are not because of the poor spatio-functional composition of the three components.

South Street Seaport and Battery Park City waterfronts in New York provide useful examples. They both have similar conditions but the outcome is very different. Battery Park City



waterfront is dominated by a mono-functional environment of luxury high-rise residential buildings. Even though it has a great waterfront promenade, wide open space, and high accessibility to the water, Battery Park city has little vitality compared to the mixed-used historic South Street Seaport, which has vibrant activity and huge crowds all day in spite of the fact that the waterfront was handicapped by an elevated highway separating the downtown area from the waterfront. Furthermore, it is characterised by a mixture of different types of buildings with various functions, including the concept of the 'festive marketplace'.

To be a successful cultural waterfront, the built environment requires special conditions because the nature of the cultural waterfront needs to accommodate a diverse and complex mixture of functions and activities, and also harness the built environment to maximise the water's potential as a socio-cultural magnet. Thus, the creation of the culturally oriented waterfront needs a complex combination of different types of building. Although the existence of major cultural grade I buildings was located on the cultural waterfront, office, shopping and residential buildings were also needed to maintain a critical mass during daytime and night time periods. In addition, each building, type contributed at a different level. For example, the existence of the Aquarium in the case study area was obviously more culturally influential than an office building, but office buildings around the waterfront play an important role in generating social activities during the daytime and night time after working hours. In other words, the successful cultural waterfront was characterised by mixed-use and multifunctional building types that contributed differently.

In addition, one of the distinctive characteristics of the built environment on the cultural waterfront was its strong integration with the water from a physical, visual, and psychological perspective. At the same time, the high quality architectural and urban design of the built environment is a prerequisite in order to support cultural activities and events and programmes.

### **7.5.3 Users of the cultural waterfront**

Like successful urban public space, the case study area shows that the successful cultural waterfront was characterised by various types of user as well as a constant flow of users throughout the day. Those users played an important role in animating the waterfront to create a socio-cultural ambience. Gehl (1994:16) argued that "people are the 'market' for the city's public spaces. They provide the interest and the animation for its streets and plazas". The observational analysis also found that different user groups, especially family groups, were an essential factor in creating a sense of the cultural waterfront. Thus, the design of the cultural

waterfront must attract various users and hold these users for a certain amount of time by providing robust human activities.

Human activities have diverse patterns that are quite hard to predict. When they are related to the natural and man-made urban environment, the activity patterns become more complex. It is, however, generally accepted that human activities are the expression of internal needs and a reflection of the paradigm of the time. In social science and psychology, there is an attempt to examine the mental states of human beings on the basis of their activity patterns, which is called 'behaviourism'.

In the built environment, human activities are strongly related to the characteristics of the spatial structure of the built environment and its functional setting. Different spatial structures and functions generate different types of human activity. For instance, the notion of private and public space is determined by the nature of the design of the space, which suggests that the two are used for different purposes by different people. The built environment in the cultural waterfront is no exception. However, as shown in the observational analysis, human activities are more diverse and complex because the existence of the waterfront dramatically influences human activity patterns compared to inland areas. Moreover, the cultural use of the waterfront requires a sophisticated physical environment and diverse non-physical contents to meet users' cultural needs. Thus, it is important to see 1) what factors influence the users' activity patterns and 2) what types of activities take place on the successful cultural waterfront.

Regarding factors influencing users' activity patterns on the cultural waterfront, the case study, especially the observational analysis, found six factors that must be considered in designing the built environment of the cultural waterfront:

1. building types
2. spatio-functional structure of the built environment
3. type of user
4. events/programmes (indoor and outdoor)
5. water's existence
6. time and weather conditions

### **1) Building types and users**

Heimsath (1977: 52) argued that "social patterns have form [...] once activities are seen in their full dimension as expressions of cultural norms as well as useful actions, they communicate meaning aside from the architectural setting". Users' activities in the case study area are substantially influenced by the spatio- functional composition of the built

environment, especially the seven building types. They played a significant role in generating activity patterns and attracting visitors. In particular, the function of CG I buildings was extremely important to the overall waterfront in terms of visitor numbers and synergy effects with secondary activities (Figure 6.52). However, a balanced composition of the seven building types along the waterfront became a foundation for the constant use of the waterfront by different users throughout the day. Interestingly, the cultural waterfront generally has high quality architectural design for each building type along with indoor programmes. As the user questionnaires showed, architectural design contributed to the creation of the cultural image and drew people through the area.

## **2) Spatio-functional structure of the built environment and users**

People-oriented, activity-oriented, event-oriented and water friendly spatial and functional structures between the land and the water were identified in the cultural waterfront. Consequently, this characteristic is directly related to the dynamic flow of activities and various activity patterns. 25 identified activity nodes included squares and parks, the amphitheatre, a wide pedestrian-only waterfront, and the openness to the water. They all symbolised the characteristics of the case study area. As Evans (2001:1) suggests, it is possible to create a cultural place where “collective and public cultural activities occur”. The observational survey clearly demonstrated that users’ activities on the waterfront are strengthened by the physical setting and good design. Most successful cultural waterfronts have high quality ‘public space’ and a ‘wide waterfront promenade’ that gives an important foundation for the potential ‘optional’ and ‘stationary activities’ that Gehl (1987, 1994) mentioned as an important indicator of the quality of public space.

## **3) Type of user**

The research showed that the cultural waterfront is characterised by users from local, national and international areas from different age groups. The observation showed that different users generate different types of activity patterns throughout the day. In the case of local people, their activities are mainly concentrated in the early morning and evening with walking, jogging, sitting and dining. However, national and international tourists and visitors generate activities related to the functions of the seven building types throughout the whole day and into the evening. Interestingly, the various educationally-oriented building types, such as the Aquarium, the Science Centre and the Maritime Museum, played a significant role in attracting different age groups. In particular, students and family gatherings consisting of children, parents and grandparents congregated in the area. They affect the diversity and liveability of the waterfront.

#### **4) Indoor and outdoor events/programmes and users**

Various indoor and outdoor events are essential activity generators and important cultural productions to animate the space, creating a culturally oriented place (section 7.5.5 for details). The observational analysis of the 11 sections showed that the management of indoor and outdoor events is equally as important as physical cultural facilities because the events attract various types of users (Figure 6.118 and 6.119). In addition, the building related events and programmes (Figure 6.112) played a crucial role in the success of the cultural waterfront, attracting millions of people per year. When the indoor and outdoor events and programmes take place in historic buildings converted into modern use, such as the Maritime Museum they attract different age groups and become very educational. In the case of the outdoor events and programme, the evidence shows that the five types of events and programmes found in the case study area were influential in attracting people and creating the image of the cultural waterfront (Figure 6.119). The combination of the different scales of temporary (e.g. 4<sup>th</sup> July Sailabration) and permanent (e.g. the Amphitheatre) events and programmes is inseparable from the cultural waterfront. For example, the Tall Ships event during the 'July 4<sup>th</sup> Sailabration' in the case study area clearly demonstrated the importance of organised events.

The users, many responded that they liked the waterfront because of the many attractions and events (Figure 6.119). The stakeholder interviews with the marketing director of Harbourplace identified effective investment as sustaining year-round quality events and the importance of strong cooperation with the city government to create different scales of events throughout the year.

#### **5) Water's existence and users**

The user questionnaires revealed that water itself creates many different activity patterns (Figure 6.149). For example, due to its existence, the panoramic waterscape generates indirect experiences such as walking, sitting, watching and relaxing but also direct experiences such as paddle boating, boating, user and water transportation and cruising on the water surface realm. Above all, humans are naturally drawn to water. The existence of the water itself provided significant opportunities to create direct and indirect socio-cultural activities as long as it was accessible to users.

#### **6) The time-dimension and weather conditions and users**

The time dimension and weather conditions influenced people's activity patterns on the cultural waterfront. Firstly, regarding the seasonals, according to the observational analysis, robust activities take place during summertime but during winter the waterfront becomes very

calm and quiet<sup>29</sup>. This clearly shows how seasonal time dimensions influence use patterns of the cultural waterfront.

In addition, the detailed results of the observational analysis over the 11 sections graphically demonstrated the transformation of use patterns during the day (section 6.4.1). 'Different users' of the waterfront generated 'different activity patterns', depending on whether observed on a weekday, the weekend, or on an event day. In other words, successful cultural waterfront space has a wide range of time zones that produce specific activities in specific times and space. Thus, it is important to take into account the time dimension when designing the built environment of the cultural waterfront.

In terms of what kind of activity patterns are identified on the cultural waterfront, Gehl (1987) argued that there are three patterns of outdoor activities (Figure 7.10). On the cultural waterfront, optional and social activities are dominant. However, the research found two additional activity patterns – 'cultural activities' and 'aquatic activities'. The observational analysis provided evidence that the successful cultural waterfront is characterised by the notions of pleasure, leisure, individually-oriented, and aesthetic, which are characteristics of the notion of culture beyond the notion of 'social activities' (1987).

'Aquatic activities' are activity patterns found in the cultural waterfront, although they share common traits with social and cultural activities. Because the waterfront is a unique place where land meets water, it might be useful to differentiate aquatic activities as another type of activity pattern. According to the case study, aquatic activities - such as boating, paddling, and navigating - are prominent and popular user activity patterns on the cultural waterfront. In addition, the user questionnaires showed that the levels of these aquatic activities and the development of water-related programmes played an important role in creating a cultural ambience because most respondents answered that the water-related activities were their favourite and the most impressive things in the case study area.

In short, users' use patterns in space and time must be considered a crucial factor in the key designing elements of the cultural waterfront in the same way that the physical built environment is developed to serve the cultural uses. In particular, activity patterns created by the existence of the water must be reflected in design principles when creating the spatio-functional formation of the waterfront's built environment.

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<sup>29</sup> The case study was conducted during summer time (June and July). The description of the use pattern of the waterfront in winter time was based on information from the stakeholder interviews.

**Figure 7.20:** Three types of outdoor activities in the built environment and two additional activity patterns identified in the cultural waterfront.

Gehl's categorisation of activity patterns		
example	description	types
<ul style="list-style-type: none"><li>▪ going to school</li><li>▪ waiting for a bus or person</li><li>▪ distributing mail</li></ul>	<ul style="list-style-type: none"><li>▪ Very independent of the outdoor environment</li><li>▪ Take place throughout the year under all conditions</li><li>▪ Majority of activities are related to walking</li></ul>	<b>necessary activities</b> (functional activities)
<ul style="list-style-type: none"><li>▪ sitting and sunbathing</li><li>▪ standing around</li><li>▪ getting a breath of fresh air</li></ul>	<ul style="list-style-type: none"><li>▪ Taking place when exterior condition are optimal</li><li>▪ Dependent on weather and the quality of place</li></ul>	<b>optional activities</b>
<ul style="list-style-type: none"><li>▪ children at play</li><li>▪ greeting &amp; conversation</li><li>▪ communal activities of various types</li></ul>	<ul style="list-style-type: none"><li>▪ Dependent on the presence of others in public space</li></ul>	<b>social activities</b> (resultant activities)

Five activity patterns on the cultural waterfront				
types		description		examples
<b>1. necessary activities</b>				
<b>2. optional activities</b>				
<b>3. social activities</b>	<b>4. cultural activities</b>	Land-related	leisure, pleasure, recreational, festive events, marketplace	musicals concert, street performances, maritime museum experience
		Water-related	any activities related with water	boating, paddling boat, water taxi, cruise service, maritime experience

## 7.5.4 Water on the cultural waterfront

In chapter 2, water's socio-cultural potentials were examined. The observation and user questionnaires substantiated the importance of the water's existence as a socio-cultural activity generator. In addition, based on the empirical evidence from the case study, the important role of the 'water's existence' as one of five components that make the cultural waterfront can be explained through comparisons of two examples – 1) the built environment inland and 2) the built environment near to water. This comparison clearly shows evidence of how the existence of the water played a significant role as a cultural catalyst (Figure 7.21).

On land, three major interactions (①, ②, ③ in Figure 7.21) were found in buildings, space and users:

1. interaction between 'users' and 'buildings'
2. interaction between 'users' and 'space'
3. interaction between 'space' and 'buildings'

On the waterfront, however, when interactions of these three elements take place near to the water, complex multi-dimensional interactions (④, ⑤, ⑥, ⑦, ⑧, ⑨ in Figure 7.21) occur by the water. As a result, six additional interactions are found:

4. interaction between 'users' and 'water'
5. interaction between 'users', 'space', and 'water'
6. interaction between 'space' and 'water'
7. interaction between 'buildings' and 'water'
8. interaction between 'buildings', 'space', and 'water'
9. interaction between 'space' and 'water'

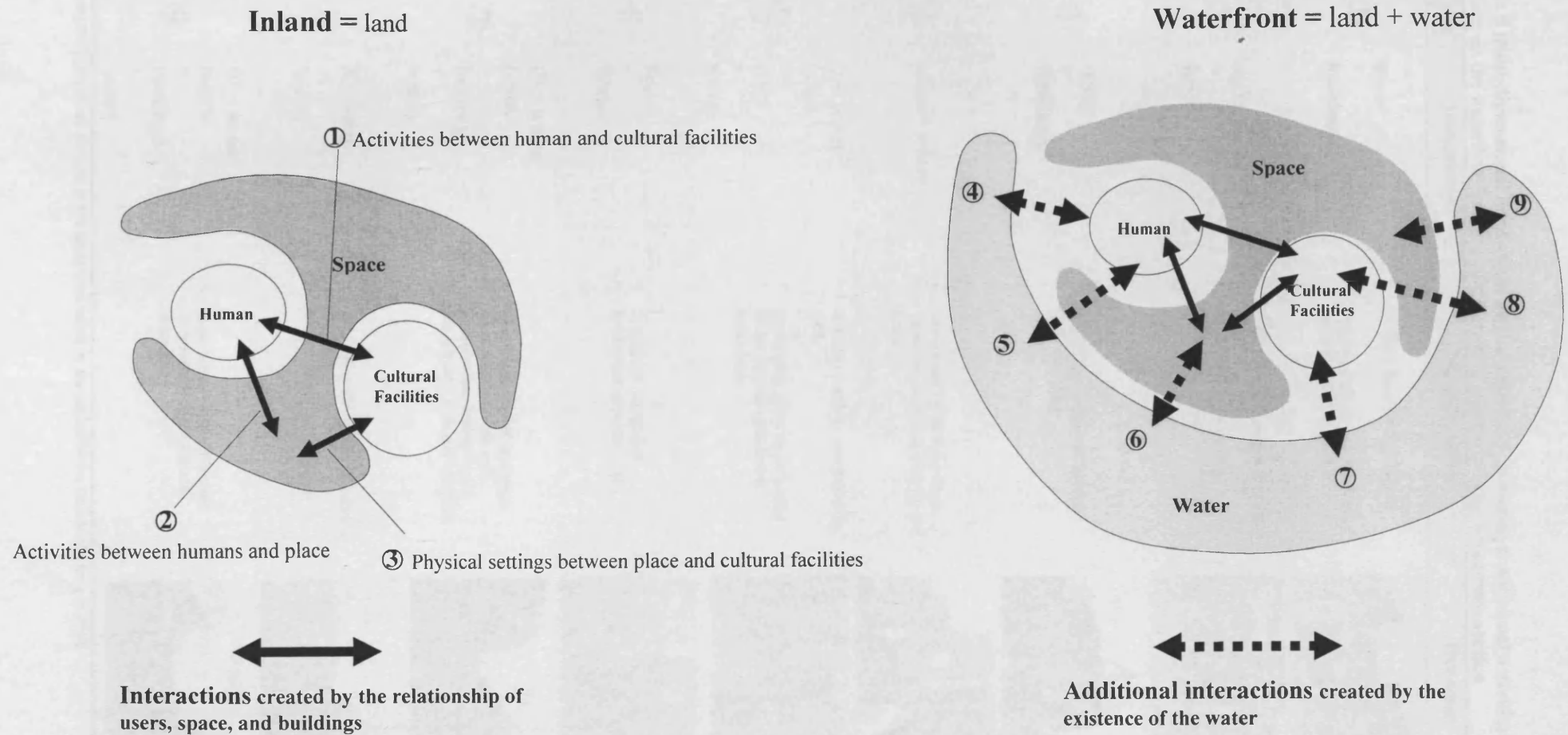
For example, to take advantage of the economic, socio-cultural benefits that water gives to the built environment, the orientation of the buildings and the typology of street and open space have distinctively different characteristics compared to an inland area. Successful waterfront redevelopment is characterised by the location of a wide waterfront promenade and squares at the water's edge and the foreground waterfront realm to provide maximum accessibility to the water. As a result, three components of the built environment on the waterfront are inclined to be designed by a strong relationship with the water's existence. Moreover, depending on the scale of water size and its types (Figure 3.18), the influence of the water's existence on the physical layout of the built environment and the interrelationship of buildings, land, and users, is various.

The case study demonstrated the multi-dimensional interactions created by the existence of the water (Figure 7.22). For example, the Aquarium section located at Pier 3 provided a typical example of how the water's existence attracted users. In addition, the quality of the 25 identified activity nodes, including squares and parks as public amenities was enhanced by the nearness to the water. Furthermore, the observation showed that the existence of the water played a significant role in generating socio-cultural activities through water-related events such as a waterfront festival, boat racing, paddling boats, and camping moored the historic ships.

In short, the successful cultural waterfront strongly relies on how users and the formation of the built environment integrate into the existence of the water, maximising the 9 types of interaction. Just as "the message of the cities lies in its human activities" (Botero quoted in Kostof, 1992:7), the vitality of 9 types of interaction by users is essential for the success of cultural waterfront. Thus, understanding the economic, social, and cultural potentials of the water (already examined in section 3.1) is critical in the cultural development of waterfront space.












**Figure 7.21:** Various interactions on the waterfront due to the existence of the water



Source: Author (2003)

**Figure 7.22: 9 multi-dimensional interactions on the waterfront, including 6 additional activities which only took place on the waterfront because of the water's existence – the Aquarium section**

	Type	Interaction	Characteristics	Example
Interactions both on land and waterfront	①	users + buildings	<ul style="list-style-type: none"> <li>Cultural facilities as a magnet</li> <li>Cultural experiences through cultural facilities</li> </ul>	
	②	users + space	<ul style="list-style-type: none"> <li>Derivative and optional activities</li> <li>Sitting, seeing, relaxing, performing events and eating</li> </ul>	
	③	space + buildings	<ul style="list-style-type: none"> <li>Significant activity nodes and gathering place</li> </ul>	
Additional interactions only on the waterfront	④	Users+ water	<ul style="list-style-type: none"> <li>Experience of the waterscape</li> <li>Touching, watching, boating and cruising</li> </ul>	
	⑤	②+ water (users + space + water)	<ul style="list-style-type: none"> <li>Attractive activity and gathering spot</li> <li>Experience of the water's edge which provides panoramic waterscape</li> </ul>	
	⑥	Space + Water	<ul style="list-style-type: none"> <li>A sense of waterfront</li> <li>Meditation of waterscape</li> </ul>	
	⑦	③ + water (space + buildings + water)	<ul style="list-style-type: none"> <li>Creating a cultural ambience</li> <li>Cultural production and consumption backup by the waterfront's built environment</li> </ul>	
	⑧	Buildings + Water	<ul style="list-style-type: none"> <li>Enhancing the quality of cultural facilities</li> <li>Attractive cultural facilities</li> </ul>	
	⑨	① + water (users + buildings + water)	<ul style="list-style-type: none"> <li>experience of three different components of the cultural waterfront</li> </ul>	

Source: Author (2002) Note: all pictures in the table were taken by the author in the case study area in 2002.

### **7.5.5 Events and programmes on the cultural waterfront**

Alexander (1979: X) stated that “every place is given its character by certain patterns of events that keep happening there”. He continued that “the more living patterns the more it comes to life as an entirety, the more it grows”. The cultural waterfront is no exception. The case study area and other successful waterfronts showed that various types of events and programmes make the waterfront liveable and enjoyable throughout the day. In addition, the identity of the waterfront space, especially the cultural waterfront, was strongly related to the different scales of organised events and programmes such as the waterfront flea market and the events in the former dockyard in Minato Mirai 21 (Figure 4.49); and the 4000 annual events at Queens’ Quay in Toronto (Breen & Rigby, 1994). All these indoor and outdoor events played an important role in attracting and sustaining visitors contributing to the liveability of the waterfront space (Figure 6.118).

As Figure 6.119 demonstrated, five types of outdoor and indoor events in the case study area were found based on their scale and level of influence on the cultural waterfront: 1) International and city-wide events/programme, which is often centrally organised, was temporal but very influential. 2) City-wide and centrally organised events were characterised by year-round performance and were regular. They played a key role in animating the waterfront space. Cultural waterfronts were also characterised by 3) building-related events and programmes through cultural grade I buildings, such as the Maritime Museum, the Aquarium, and the open concert hall. However, 4) regular and site-specific and 5) random street events during the weekend and weekdays also played an important role in vitalising waterfront space. Finally, site-specific and random street events were strongly related to musical performances.

The case study suggested that events and programmes on the cultural waterfront were highly educational for family with leisure and entertainment experiences compared to other waterfront types. Users were often dominated by families and children during the day. The level of families and children groups might be a significant indicator in deciding a cultural waterfront because a large percentage of visitors were children and student groups visiting the Aquarium, the Science Centre, the Maritime Museum and the Living Classrooms Foundation. In the literature review in chapter 4, the operation of events and programmes was often and strategically used as an opportunity both to transform the formerly abandoned waterfront to a public space, and to reinforce the image of the place, so-called place-making and city-marketing. Many cases were found from the review, such as the City Event at the former naval shipyard in Boston; the celebration of the 500<sup>th</sup> anniversary of Columbus discovery in

the historic Genoa waterfront; and Baltimore's international Tall Ships exhibition. Although these international events lasted very short periods, the symbolic image of the events and programmes on the waterfront made a significant impression on the people and this helped to create a new image for the waterfront.

The user questionnaires and observational analysis conducted during the 4<sup>th</sup> July Sailabration event day clearly demonstrated how visitors and tourists responded to the event (Figure 6.69). The event enhanced the cultural image of the waterfront, and affected use patterns along the waterfront space and the level of congregation. At the end of the event days, hundreds and thousands of people gathered at the waterfront as it became the centre of the celebration. It was truly a cultural place where different ethnic local groups, tourists and visitors all shared the celebration (Figure 6.76).

Furthermore, events and programmes might be more effective and less expensive initiatives to regenerate waterfront spaces than the construction of iconic landmark buildings. However, animating the space through events in the built environment of the cultural waterfront is unlikely to be enough, without the provision of cultural facilities. The activities in the Amphitheatre section, which hosts 200 annual events, provides a good example of the importance of events in the built environment of the cultural waterfront (Figure 6.75 and Figure 6.77). Another significant finding was that events and programmes were strongly related to the water's existence. In other words, the cultural waterfront has a highly animated water surface realm with water-related events and programmes using historic and modern ships such as the Maritime Museum, the marina, paddling boats, and the Tall Ships.

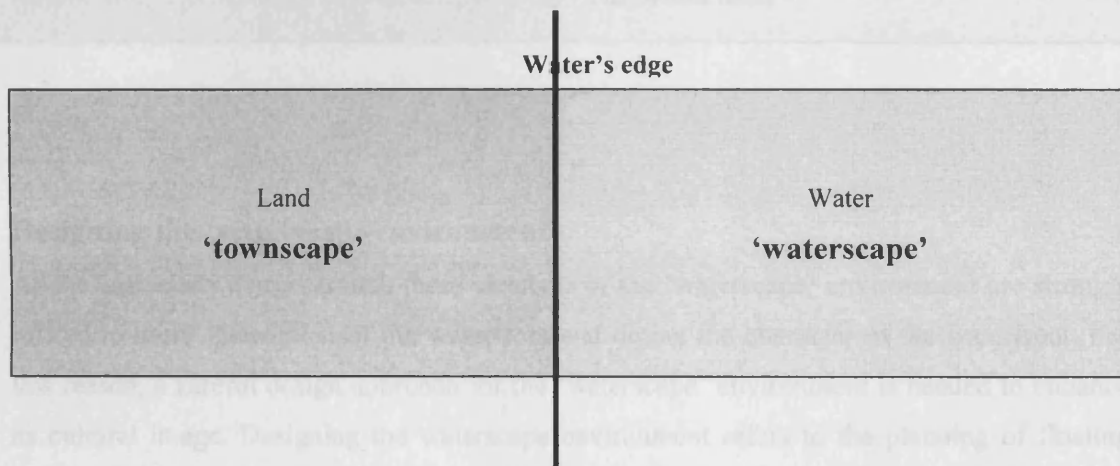
The research showed that using floating objects as an important events and programmes generator was a common waterfront redevelopment approach for cultural uses. The case study provided a good example, showing the use of floating objects to animate the cultural waterfront with a marina, the Tall Ships, cruise boats, water taxis, boats, submarine, and historic battleship (Figure 6.151). When the floating objects were historic artefacts, the impact of events and programmes was more influential because the historic artefact itself became a magnet on the waterfront.

## **7.6 Designing the 'waterscape environment' and the cultural waterfront**

The observational and user questionnaires demonstrated that the concept and design of the 'waterscape environment' is strongly related to the image of the cultural waterfront because

users perceived the floating objects such as historic ships, boats, and the marina as influential cultural image creators. In addition, the observational and user questionnaires during the event days demonstrated that their existence actually influenced the use patterns as well as the quality of the whole cultural waterfront space, affecting the overall success of the waterfront. Hence, it is important to consider the design of the water surface realm, where all floating and anchored objects are located (the waterscape environment) just as it is to design the built environment on land (the townscape environment) (Figure 7.23).

**Figure 7.23:** Two important environments in designing the cultural waterfront



The 'waterscape' environment can be defined as the environment that contains floating and anchored objects 'over', 'on', and 'beneath' the water surface realm, including the water itself. It has similar components to the 'townscape' environment, which has buildings, open space, and historic artefacts. For example, the floating objects - such as historic ships, boats, marina, pier, floating Maritime Museum, and water-related historic objects in the water - can be compared to the different types of buildings, such as the seven building types on the land. The floating Maritime Museum functioned as an important cultural facility (CG I buildings). In addition, the paddling boats offered an important leisure and entertainment facility (CG II buildings). As a waterway, the water surface realm was used by water taxis, the water bus, and ships, and can be referred to as the street system on the water. Above all, the water surface itself functioned as an important square for all floating and anchored objects. In addition, because of the historic and industrial heritage along the waterfront, the 'waterscape environment' consists of a wealth historic artefacts both on land and in the water realm. Floating objects are movable and static at the same time, unlike the components of the land built environment, and this creates a significant difference between the two realms.

**Figure 7.24:** The three components of the ‘waterscape environment’ which are comparable to those in the ‘townscape environment’

Water's edge	
‘townscape environment’	‘waterscape environment’
Seven building types (CG I to VII)	<b>Floating objects</b> (functioning like buildings) such as tall ships, boats, marina, pier, paddling boats and cruise ships
Open space (street, square and park)	<b>Water surface</b> (the water itself become an open space, waterways, and park)
Historic artefacts (buildings, objects, and place)	<b>The Water itself</b>

### Designing the ‘waterscape environment’

As the case study demonstrated, these elements of the ‘waterscape’ environment are strongly related to users’ perception of the waterfront and define the character of the waterfront. For this reason, a careful design approach for the ‘waterscape’ environment is needed to enhance its cultural image. Designing the waterscape environment refers to the planning of floating and anchored objects in the water surface realm. This relates to the spatio-functional arrangement of these objects - water surface use patterns. The influence of these floating objects in creating a cultural waterfront in terms of the visual, perceptual, spatio-functional and users’ activity patterns is highly significant. In addition, the influence of the floating objects was strongly related to their distance from the water’s edge. When floating objects are close to the water’s edge, users’ interaction with the water is more active. As a result, the water surface realm can be divided into three sub-realms, depending on the level of users’ interaction (Figure 7.25).

**Figure 7.25:** The seven realms of the waterfront space between ‘townscape’ and ‘waterscape environment’

‘townscape environment’				‘waterscape environment’		
Inland realm	Background waterfront realm	Foreground waterfront realm	Water's edge realm	Foreground water surface realm	Background water surface realm	Off water surface realm
Land				Water surface realm		

‘The foreground water surface realm’ is the area where most floating objects anchor alongside the water’s edge. In addition, it is the place where people can get direct access to them. ‘The background water surface realm’ is the place that people can reach via piers and marinas, and the area people can enjoy with paddling boats. However, ‘the off water surface realm’ is a place people can only get to using water transportation.

To sum up, as the research showed, to create a successful cultural waterfront, the design of the ‘waterscape environment’ must be given equal emphasis alongside the design of the ‘townscape environment’. In other words, it is important to take into account the spatio-functional interfaces of the seven realms between the two environments (Figure 7.25).

## **7.7 ‘Waterfront attraction’ and the cultural waterfront**

### **7.7.1 The importance of the interface between land and water**

In chapter 3, the level of interaction between water and land, and the use patterns of waterfront space were seen to be influenced by the two and three dimensional typology of the waterfronts (Figure 3.26, 3.27 and 3.33). For example, the four-sided water’s edge, like Darling Harbour and Baltimore’s Inner Harbour is likely to provide more opportunities to create a dynamic waterscape with greater visual richness than a one-sided waterfront. In addition, a shear water’s edge is less likely to provide direct contact to the water than a beachside waterfront. Forward (1969: 169) argued that “variation in physical character of shorelines facilitates the accommodation of different waterfront land uses within a particular harbour”. He continued that “the size, shape and depth of the harbour has a strong influence on the character of shoreline use.” As the case study showed, it is evident that the type of section and plan of the water’s edge generates both positive and negative impacts on the potential of the waterfront. In other words, it is important to see how the physical shape of the water’s edge impacts on use patterns and accessibility to the water, both of which affect the liveability of waterfronts.

The literature review showed that the successful waterfront had a unique redevelopment process which was characterised by perceiving the waterfront as a public domain and by opening up the waterfront to the existing urban fabric during the early design stages (Figure 4.61).

In the user questionnaires, about 96 % of respondents saw water as an important factor that defined the waterfront as cultural (Figure 6.149). 62.7% of people thought ‘the visual and



physical openness to water' was the most important element in creating a sense of a cultural waterfront (Figure 6.136).

All interviewees who were involved in shaping the current waterfront also described the water as an important engine for generating cultural activities and uses in the redevelopment process because people are naturally drawn to the water for psychological and visual reasons. Even before the construction of the major buildings in the case study area, the green open space along the waterfront attracted significant numbers of people, for it became the venue for the 'City Fair' (Figure 6.11). The waterfront had been the city's main cultural quarter even before the existence of the current buildings such as the Aquarium, the Maryland Science Centre, and Harbourplace. In other words, the water itself was a fundamental factor in creating a cultural ambience. According to the interview with the marketing director of Harbourplace, the great success of the notion of the 'festive market place' at Harbourplace was strongly related to the water's existence. Without the strong link between the water and Harbourplace, the current extraordinary success with 9.8 million visitors in 2003 would not have occurred. Stakeholder interviews with other managers directly involved with the waterfront also showed that the water guaranteed the success of the current cultural waterfront.

In addition, the spatial characteristics of the five realms of the waterfront demonstrated the importance of active interaction between the water and each realm in the context of designing the spatio-functional structure of the waterfront space. Most successful cultural waterfronts were characterised by physical and visual accessibility from the background waterfront, foreground waterfront and water's edge to water surface realms.

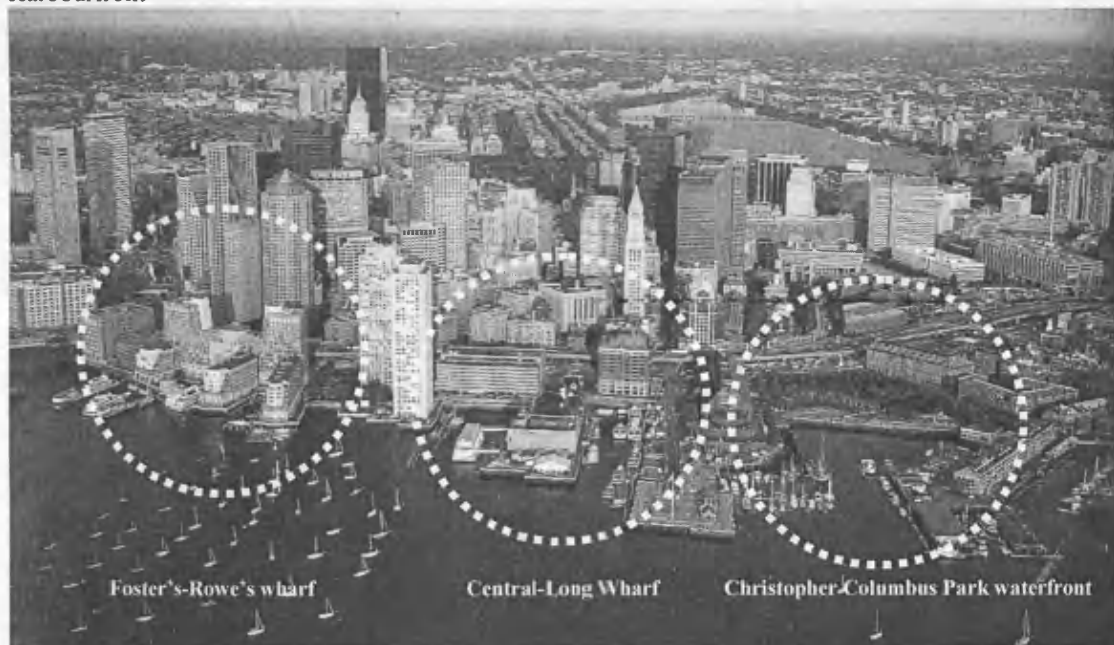
In a sense, the redevelopment of the post-modern urban waterfront with its cultural uses seems to have revitalised the relationship between port and city, not seen since the dominant industrial use of the waterfront in the 1950s. In addition, re-establishing the relationship between the city and port also means reconnecting the hinterland to the water by transforming the image of the waterfront from that of an industrial area. Connecting the hinterland and the water and creating a cultural public domain requires a careful design approach to form the spatio-functional structure that supports the cultural and public uses. On the basis of the research, the most important task in designing the urban waterfront space focuses on the interface between the water and the land at the waterfront. As the research clearly shows, the failure to reconnect the water and the land is less likely to produce success for a cultural waterfront in the redevelopment process.

The level of visual, physical and psychological accessibility between the 'waterscape environment' and 'townscape environment' becomes a prerequisite when creating the cultural waterfront. Also, for cultural uses and activities, the waterfront relies on the capacity of the physical structure of the waterfront space to provide maximum physical, visual and psychological accessibility and experience of the waterscape for users. Eventually, this physical structure makes a successful cultural waterfront. This is 'waterfront attraction', which is the ability of the relationship between the 'townscape environment' and the 'waterscape environment' to maximise interaction between the water and land.

### 7.7.2 The notion of 'waterfront attraction'

The notion of 'waterfront attraction' can be understood using Lynch's argument (1960) that good city form must have high imageability<sup>30</sup>. The successful waterfront must have high 'waterfront attraction' that provides users with visually and physically accessible interfaces between the built environment and the water, providing a strong mental image of the waterscape. For example, three different spatial structures of waterfronts along Boston's Harbourfront provide useful clues to understanding the notion of 'waterfront attraction' (Figure 7.26).

**Figure 7.26:** The levels of 'waterfront attraction' in different waterfront settings in Boston Harbourfront



Source: Mapping Boston (Krieger et al, 2001, p146)

<sup>30</sup> "A physical quality which is related to the attributes of identity and structure in the mental image. Quality in physical objects which gives it a high probability of evoking a strong image in any given observer. It is shape, colour, or arrangement which facilitates the making of vividly identified, powerfully structured, highly useful mental images of the environment" (Lynch, 1960: 9).

Depending on 1) development purpose, 2) spatial structure between the built environment and the water, and 3) physical and visual accessibility to the water, the level of waterfront attraction is different. Because of its commercially driven approach, the commercial Foster's-Rowe's Wharf has poor 'waterfront attraction' compared to the cultural-oriented Central-Long Wharf and the Christopher Columbus Park waterfront . Luxury condominiums, hotels and residential buildings are located along the water's edge and in the foreground waterfront realm. As a result, the potential for experiencing the waterscape is very limited. In addition, the level of 'waterfront attraction' directly impacts on the quality of the waterfront space, the value of properties and the sense of the water. Consequently, it is directly related to the success in waterfront redevelopment for cultural uses and other purposes.

The notion of the 'waterfront attraction' can also be understood through the elements of the environmental image. Lynch (1959:8) stated that "an environmental image may be analysed into three components: identity, structure, and meaning". However on the waterfront, due to the dominance of water's existence as a structuring element, 'identity', 'structure' and 'meaning' are significantly influenced by the unique water-related attributes - waterscape, natural setting (e.g. waterfront park), historic maritime heritage (e.g. Tall Ships), and the water-related built environment (e.g. marina, waterfront promenade and pier), rather than various factors in the inland areas such as landmark buildings, streets, and squares. Thus, water itself becomes the most significant image generator affecting the three elements (Figure 7.27).

**Figure 7.27:** The characteristics of the environmental image on land and on waterfronts

Inland	Environmental image	On waterfronts
<ul style="list-style-type: none"> <li>▪ Various and complex, depending on the surrounding environment</li> </ul>	Identity	<ul style="list-style-type: none"> <li>▪ predominantly influenced by water</li> <li>▪ dichotomous character of water and land</li> </ul>
<ul style="list-style-type: none"> <li>▪ Various</li> <li>▪ Complex of edge, path, node, district and landmark</li> </ul>	Structure	<ul style="list-style-type: none"> <li>▪ predominantly influenced by water</li> <li>▪ dichotomy between land/water</li> <li>▪ dichotomy between solid/fluid</li> <li>▪ shear edge conditions between water and land</li> </ul>
<ul style="list-style-type: none"> <li>▪ Various</li> <li>▪ Likely to be decided by the function of buildings on the site</li> </ul>	Meaning	<ul style="list-style-type: none"> <li>▪ predominantly decided by water</li> <li>▪ vivid &amp; dichotomous character of water and land</li> </ul>

'Waterfront attraction' can also be understood by an analytical tool based on Lynch's five elements – 'path', 'edge', 'node', 'district' and 'landmark'. This tool can be applied only to the 'urban waterfront district', which consists of a 'townscape and 'waterscape' environment, although Lynch's tool is universal to both inland and the waterfront area (Figure 7.28).

**Figure 7.28:** The notion of waterfront district in a city

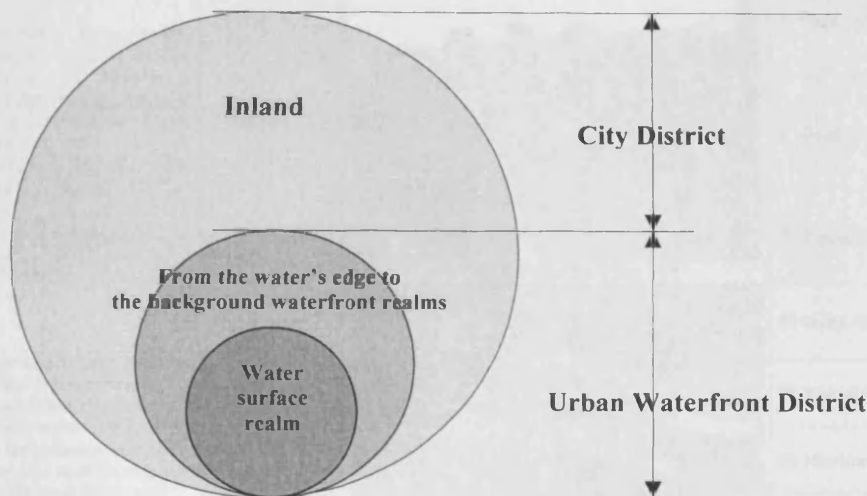


Figure 7.29 demonstrates the description of Lynch's five elements in a City District with added elements for analysing the 'waterfront attraction' of a waterfront. Lynch's 'path', 'edge', 'node', 'district' and 'landmark' are further developed and divided into detailed components, depending on what relationship each element has with the water in the context of the urban waterfront. In addition, 'waterform' is added as a sixth analysing element because the geographical shape of the water's edge influences the quality of the waterfront space and use patterns. A total of 21 sub-elements from six main elements are used to analyse the level of 'waterfront attraction' or as an indicator of 'waterfront attraction'.

For example, as the literature review and the case study showed, when the spatial structure of the built environment has a higher level or length of 'wet path' than 'dry path', 'extended edge' than 'shear edge', 'wet district' than 'hard district', 'floating node' than 'static node', 'mobile landmark' than 'static landmark', and more sides of water's edge than just one side, the 'waterfront attraction' is increased. In other words, the level of wet path, wet edge, mobile landmark, floating node, wet district and fluid path in waterform is crucial in creating a high level of 'waterfront attraction'. Great attention needs to be paid to these elements when designing the spatial structure of the waterfront's built environment (Figure 7.29).

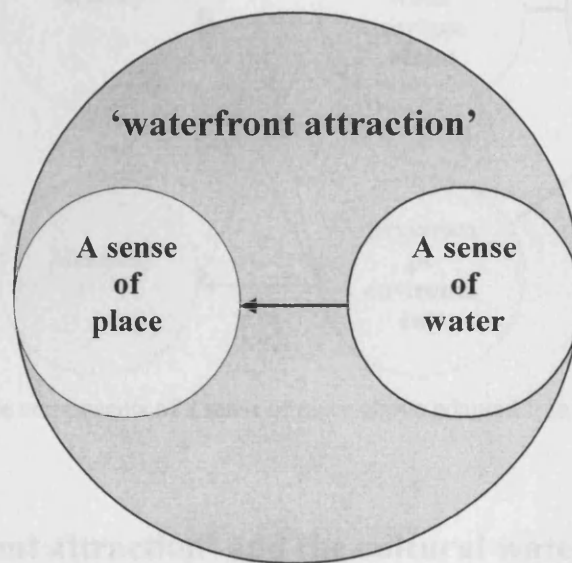
**Figure 7.29:** An analytical tool to identify the waterfront attraction in waterfront district

City context (by Lynch)		Waterfront districts context (by author)	
<p>Paths are the channels along which an observer moves ... for many people these are the predominant elements of their image. People observe the city while moving through it, and along these paths the other environmental elements are arranged (Lynch, 1959:47)</p>	<p><b>1. Paths</b></p>	 <p>Source: 10:12 Thursday 24<sup>th</sup> June 2004</p>	<p>① <b>Dry path</b></p> <ul style="list-style-type: none"> <li>- path on the waterfront without visual contact with water</li> </ul>
			<p>② <b>Wet path</b></p> <ul style="list-style-type: none"> <li>- path on the waterfront visual contact with water</li> </ul>
			<p>③ <b>Pier path</b></p> <ul style="list-style-type: none"> <li>- engineered path projecting perpendicular into water and providing multi-direction visual contact to water</li> </ul>
			<p>④ <b>Fluid path</b></p> <ul style="list-style-type: none"> <li>- path for floating objects, such as water taxis, cruises and ships in the water which carry people</li> </ul>
<p>Edges are the linear elements not used or considered as paths by the observer. They are the boundaries between two phases, linear breaks in continuity: shores, railroad cut, edges of development, and walls. They are lateral reference rather than coordinate axes (Lynch, 1959:47)</p>	<p><b>2. Edges</b></p>	 <p>Source: 14:42 Saturday, 3<sup>rd</sup> July 2004</p>	<p>⑤ <b>Shear edge</b></p> <ul style="list-style-type: none"> <li>- Vivid levelled division between land and water</li> </ul>
			<p>⑥ <b>Double edge</b></p> <ul style="list-style-type: none"> <li>- The area covered by shallow water</li> </ul>
			<p>⑦ <b>Extended edge</b></p> <ul style="list-style-type: none"> <li>- Structural elements extend over water surface</li> </ul>
<p>Districts are medium to large section of the city, conceived of as having two-dimensional extent, which the observer mentally enters 'inside of', and which are recognisable from the inside. They are also used for exterior reference if visible from the outside (Lynch, 1959: 47)</p>	<p><b>3. Districts</b></p>	 <p>Source: 16:25 Thursday 24<sup>th</sup> July 2004</p>	<p>⑧ <b>Hard district</b></p> <ul style="list-style-type: none"> <li>- district inside the five realms of waterfront area without visual contact with water</li> </ul>
			<p>⑨ <b>Wet district</b></p> <ul style="list-style-type: none"> <li>- district inside five realms of the waterfront with visual contact with the water</li> </ul>
			<p>⑩ <b>Marina district</b></p> <ul style="list-style-type: none"> <li>- district created by engineer pier structure that accommodates people and ships</li> </ul>
			<p>⑪ <b>Mobile district</b></p> <ul style="list-style-type: none"> <li>- large scale cruise and excursion ships that host events and people</li> </ul>
<p>Nodes are points, the strategic spots in a city into which an observer can enter, and which are the intensive foci to and from which he is travelling. They may be primarily junctions, place of a break in transportation, a crossing or convergence of paths, moments of a shift from one structure to another. Or the nodes may be simply concentrations, which gain their importance from being the condensation of some use of physical character, as a street corner hangout or an enclosed square (Lynch, 1959:47)</p>	<p><b>4. Nodes</b></p>	 <p>Source: 17:05 Saturday 19<sup>th</sup> June 2004</p>	<p>⑬ <b>Static node</b></p> <ul style="list-style-type: none"> <li>- nodes on land in the waterfront area</li> </ul>
			<p>⑭ <b>Exchange node</b></p> <ul style="list-style-type: none"> <li>- points that ships and people arrive at and depart from at water's edge providing dramatic experience of landscape and waterscape at the same time</li> </ul>
			<p>⑮ <b>Floating node</b></p> <ul style="list-style-type: none"> <li>- nodes in waterfront area such as Tall ships</li> </ul>
<p>Landmarks are another type of point-reference but in this case the observer does not enter within them, they are external ... their use involves singling out elements from a host of possibilities. Some landmarks are distant ones, typically seen from many angles and distances ... other landmarks primarily local, being visible only in restricted localities and from certain approaches (Lynch, 1959:48)</p>	<p><b>5. Landmarks</b></p>	 <p>Source: 16:01 Wednesday 30<sup>th</sup> June 2004</p>	<p>⑯ <b>Static landmark</b></p> <ul style="list-style-type: none"> <li>- landmark located at inland realm</li> </ul>
			<p>⑰ <b>Wet static landmark</b></p> <ul style="list-style-type: none"> <li>- landmark located between water's edge and background waterfront realm</li> </ul>
			<p>⑱ <b>Static floating landmark</b></p> <ul style="list-style-type: none"> <li>- floating objects landmark permanently anchored in the water's surface</li> </ul>
			<p>⑲ <b>Mobile floating landmark</b></p> <ul style="list-style-type: none"> <li>- floating objects landmark but mobile in water</li> </ul>
<p>Waterform is the two and three-dimensional shape of the water's edge. The shape of water's edge influences use patterns, quality of the waterfront, and accessibility between the land and the water (Author)</p>	<p><b>6. Waterform</b></p>	 <p>Source: Millsaugh (2001, p47)</p>	<p>⑳ <b>Two dimensional waterform</b></p> <ul style="list-style-type: none"> <li>- straight</li> <li>- natural</li> <li>- convex</li> <li>- concave</li> <li>- stretch</li> <li>- enclosure</li> <li>- island</li> </ul>
			<p>㉑ <b>Three-dimensional waterform</b></p> <ul style="list-style-type: none"> <li>- perpendicular</li> <li>- levelled bank</li> <li>- diagonal</li> <li>- stepped</li> <li>- slope</li> <li>- pier</li> </ul>

Source: Author (2004)

Overall, the ‘waterfront attraction’ is the combination of two concepts of urban place-making. One is ‘a sense of place’. The other is ‘a sense of water’ (Figure 7.30). The notion of the sense of place and its key components has already been examined by Canter (1977), Punter (1991) and Montgomery (1998) and reported in chapter 3 (Figure 3.12). ‘A sense of water’ is how users or observers can sense the existence of the water in direct (e.g. visual or physical contact with the water) or indirect (e.g. ships, boats, piers, and marina) ways.

**Figure 7.30:** Two important components to create high ‘waterfront attraction’

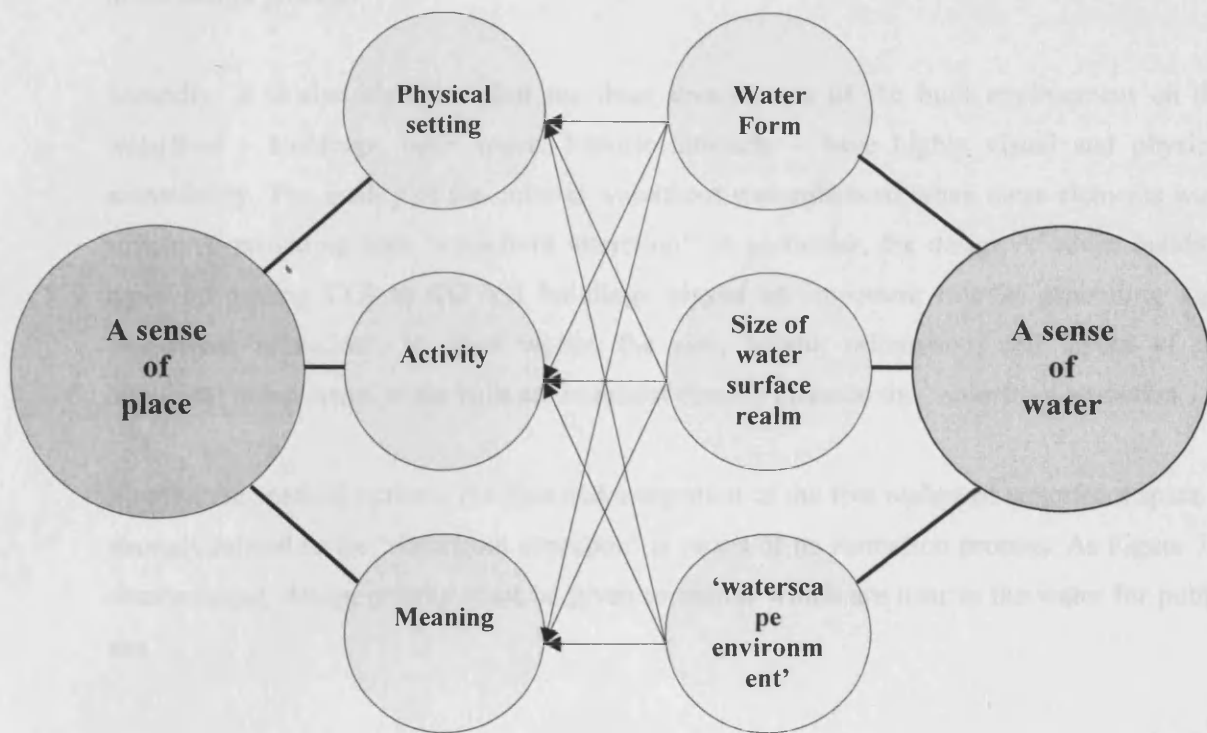


The research identified that three key components – 1) waterform, 2) size of water surface realm, and 3) ‘waterscape environment’ - influenced users in sensing the existence of the water in all different types of waterfronts. Thus, to achieve high ‘waterfront attraction’ means creating ‘a sense of place and a sense of water’ through the design and relationship of the six elements above (Figure 7.31). As the research showed, for the successful cultural waterfront, maximising the potential of each of the six elements is an essential factor to be taken into account in the design process.

To conclude, in general the notion of ‘waterfront attraction’ is a combined notion of ‘a sense of place’ which focuses on land area and ‘a sense of water’ which mainly focuses on water surface area, providing users with high interfaces between the built environment and the water. In detail, it can be said that: ‘waterscape environment’ gives a high sense of the water to any given observer; physical settings enable users to get highly visual contact in the course of approaching the water; physical objects are related to water’s existence and give mental images of water to users, such as tall ships, boats, marina, submarines, etc.



**Figure 7.31:** Two important concepts and their sub-elements which influence ‘waterfront attraction’



**Note:** The components of a sense of place above adapted from Punter (1991)

### 7.7.3 ‘Waterfront attraction’ and the cultural waterfront

The previous section described the notion of ‘waterfront attraction’. In addition, ‘waterfront attraction’ was identified as an important foundation for the cultural waterfront, providing empirical evidence of the kind of relationships that exist between ‘waterfront attraction’ and creating cultural uses and activities on the waterfront.

The case study clearly showed that most people saw water as the cultural element for the cultural waterfront and it played an important role in creating a cultural ambience. The morphological analysis in section 6.2 also demonstrated how visually and physically accessible physical settings to the water provided a cornerstone for cultural development. Thus, the relationship between ‘waterfront attraction’ and the cultural waterfront can be characterised by an examination of how ‘waterfront attraction’ influences and enhances the cultural activities and use.

Firstly, in terms of the waterfront redevelopment process (Figure 7.14), the successful cultural waterfront is characterised by perceiving the waterfront as a valuable public realm in the early



development process providing physical and visual openness between the land and the water in the design process.

Secondly, it is also identified that the three components of the built environment on the waterfront - buildings, open space, historic artefacts – have highly visual and physical accessibility. The quality of the cultural waterfront was enhanced when these elements were structured providing high ‘waterfront attraction’. In particular, the design of seven building types integrating CGI to CG VII buildings played an important role in generating high ‘waterfront attraction’. In other words, the size, height, orientation, and layout of the individual components of the built environment directly affected the ‘waterfront attraction’.

Thirdly, the spatio-functional division and integration of the five realms of waterfront space is strongly related to the ‘waterfront attraction’ in terms of its formation process. As Figure 7.8 demonstrated, design priority must be given to realms which are near to the water for public use.

Finally, according to the observational survey, animating the ‘waterscape environment’ using floating objects (e.g. ships and boats) and historic artefacts (e.g. tall ships) influenced the ‘waterfront attraction’ in an indirect way. It indicated that the existence of water itself has made significant contributions to potential cultural uses and activities. In addition, most interviewees who are involved in managing buildings and events in the case study area, such as the Hyatt Hotel, Harborplace, the Public Works Museum, and the USS Constellation, also emphasised a lively waterscape environment in the water surface realm as an important resource in generating cultural ambience.

To conclude, the evidence from this research suggests that the level of contact between users, the built environment and water provides a significant and fundamental foundation for cultural uses and activities. Thus, designing the whole physical structure of the built environment for cultural uses has to take into account the notion of ‘waterfront attraction’ in the development process.

## **7.8 Conclusions**

This thesis has tried to answer the research question – how can the spatio-functional composition of the built environment and water interfaces can generate opportunities for cultural uses and activities – and achieve research objectives based on the findings in chapter 2, chapter 3, chapter 4, and chapter 6, especially the in-depth investigation of the case study area using a multi-dimensional method to collect five different layers of data of the cultural waterfront (Figure 5.7). In the previous sections, seven theoretical themes for designing the cultural waterfront are proposed to answer the research question based on the synthesis of findings from each chapter. In addition, each theme was examined thoroughly, showing the empirical evidence from the key findings of each chapter, especially from the case study area. Overall, as Figure 7.32 shows, the thesis has produced important research outcomes that can contribute to an understanding of the cultural waterfront (re)development process in terms of both ‘theoretical’ and ‘practical’ perspectives.

### **7.8.1 Further research tasks and conclusions**

Although the research outcomes and possible applications for the design of the cultural waterfront in terms of the theoretical and practical perspectives have been addressed in the thesis, further research work is possible to examine the spatio-functional composition of the built environment and water interfaces for cultural uses and activities.

First, the research outcomes can be further developed and applied through an actual experimental design process, developing and expanding each in the process. Second, further examination of the interrelationship of each of the seven theoretical themes is required. This thesis proposed independent theoretical themes related to the design of the cultural waterfront. For example, the interrelationship between the five components that constitute the cultural waterfront and each of the five realms of the waterfront could produce various types of design options with different impacts on the quality of waterfront space. At the same time, it could provide more sophisticated theoretical and practical outcomes, such as design guidance and a practical manual for designing and master planning waterfronts. Third, it might be very useful to investigate how the research outcomes, which mainly came from the analysis of cultural waterfronts, relate to other waterfront types such as predominantly commercial, residential, historic, and environmental waterfronts. If it is possible to determine the differences and characteristics of each waterfront type, then it would provide a valuable picture of various waterfront redevelopment scenarios.

**Figure 7.32:** The overall research area, processes and outcomes

1. Research aim	2. objectives	3. The research areas		4. The key research outcomes		5. The research application				
How can the spatial/functional composition of the built environment and water interfaces generate opportunities for cultural activities and uses?	1) Examining the cultural significance of the waterfront in urban design and post-modern society (Chapter 2)	Chapter 2	the theoretical conceptualisation of post-modernism, urban design and designing the cultural waterfront	Chapter 7: Synthesis and discussion	Seven theoretical and practical themes to be considered for designing the cultural waterfront	Theoretical perspective in designing the cultural waterfront	-Theory of designing the cultural waterfront			
	2) Identifying the formation and physical character of the new waterfront spaces (Chapter 3 and Appendix C)	Chapter 3	the physical characteristics of waterfront space				-Theoretical conceptualisation of designing other waterfront development types			
	3) Investigating the waterfront redevelopment phenomenon around the world (Chapter 4 and Chapter 6)	Chapter 4	Mapping world-wide waterfront redevelopment phenomena							
	4) Postulating a new theory for the design of cultural waterfronts (Chapter 7)	Chapter 5	advanced methodology - multi-dimensional approach			Practical perspective in designing the cultural waterfront	-Design policy			
		Chapter 6	In-depth investigation of the cultural waterfront (The case study)							
							-Design guidance			
							-Development framework			
							-The production of a master plan			
							-Practical pattern language for each of the five realms of waterfront space			

Fourth, the case study area is a harbourside which has different geographical characteristics and a different physical setting compared to a riverside, canalside or lakeside cultural waterfront. As a result, it is hard to generalise the findings from this thesis because the different types of waterfronts might have different morphological characteristics and interrelationships with the existing urban fabric (Figure 3.16, 3.17, 3.18, 3.26, 3.27 and 3.33). For example, while riversides have a 'double linear water's edge' and are normally located in the centre of a city like the River Thames in London, the River Seine in Paris and the Hudson River in New York, the harbourside waterfront is normally located at the edge of the city and has only 'one linear water's edge. The canalside creates a smaller scale waterfront compared to harbours or rivers. Because of this, the cultural use of the canal side waterfront might have different spatial characteristics for cultural uses. Thus, it is necessary to investigate different types of cultural waterfronts - such as riverside, canal side and lakeside waterfronts – to compare and determine the differences and common characteristics of each. This investigation has provided a more generalised concept of the theoretical themes about the cultural waterfront. In addition, it might be useful to examine what kind of characteristics different waterfront development types have compared to the cultural waterfront in the context of the seven key research outcomes in this thesis. Finally, another important future task might be to search out new forms of cultural waterfronts in the new Millennium. The early successful waterfront redevelopments such as Baltimore, Boston, and Vancouver, have provided useful lessons, models and resources that have played an important role in guiding the revitalisation of many other waterfront redevelopments. However, in spite of different geographical locations and redevelopment periods, waterfront redevelopment approaches around the world seem in many respects to replicate the early successful examples.

In particular, a clone of early redevelopment patterns and built environments is often found both in advanced countries and even in developing and underdeveloped countries. In the new millennium, however the waterfront redevelopment phenomena is clearly still continuing around the globe and there are positive and negative stories of the waterfront redevelopment phenomena. Therefore, there is no single fixed formula which will guarantee successful waterfront redevelopment, and alternative models may be required. In the postmodern era, the paradigm of individually-oriented, complex, diverse, and pleasure leisure-oriented environments is clearly very powerful in the design of urban waterfronts. Also, in light of the rapid globalisation and localisation process around the world, the waterfront has become not only the place where each waterfront city can be represented to market its image but also the place where it can differentiate its unique local characteristics. Culture provides an important context through which to understand the two paradoxical processes of globalisation and

localisation in post-modern society. Urban waterfronts may be the most challenging places where these two paradoxical processes take place.

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## **APPENDIX**

Appendix A: Observational analysis format sample sheet

Time	Observation analysis areas throughout a day					Observation Objects	Observation check list	
	Inland	Background Waterfront	Foreground Waterfront	Water edge	Water surface			
Morning						1. Urban waterfront form & 2. Built Environment	Location	
Afternoon							Date	
Evening							Time	<div>Week days</div> <div>Week ends</div> <div>Day /Night</div>
							Duration	
Morning						3. Users	Equipment	Notational map
Afternoon								Camera
Evening								Precoded checklist
						Camcorder		
							Digital camera	
							Events on /off	
Morning						4. Events and Programmes		
Afternoon								
Evening								
Morning						5. Water Surface		
Afternoon								
Evening								
Sections of the observation area (e.g. section 9 – Visitor information Centre section)								
							The location of observational section	

Source: Doshik Yang (2002)

# **Appendix B**

## **User Questionnaires**

**Waterfronts:  
spatial composition and cultural use**

**June, July, 2004**



**University College London**

### Q.1) Age

- ☐ 10-20      ☐ 21-25      ☐ 26-30      ☐ 31-35      ☐ 36-40
- ☐ 41-45      ☐ 46-50      ☐ 51-55      ☐ 56-60      ☐ 61-65
- ☐ 66-

### Q.2) Sex

- ☐ Male      ☐ Female

**Q.3) Are you**

- ☐ Local people
- ☐ Living in other cities in America
- ☐ From a different country

**Q.4) What is the purpose of your visit to Baltimore Inner Harbour Waterfront?**

- ☐
- Sightseeing
- ☐
- Business
- ☐
- etc (                      )

**Q.5) What do you think of Baltimore Inner Harbour waterfront?**

- ☐ Cultural waterfront      ☐ Commercial waterfront      ☐ Residential waterfront
- ☐ Environmental waterfront      ☐ Historic waterfront      ☐ etc (                      )

**Q.6) How would you describe Baltimore Inner Harbour waterfront?**

(1: very enjoyable, 5: not enjoyable)

- 1(      )                      2(      )                      3(      )                      4(      )                      5(      )

**Q.7) What are the best / worst things on the waterfront?**

**Best things** ( )

**Worst things (**



**Q.8) What are the most impressive physical things on the waterfront?**

(please tick more than one if necessary)

- |   |  |
|---|--|
| <input type="checkbox"/> Waterfront Square                    | <input type="checkbox"/> Waterfront Promenade                        |
| <input type="checkbox"/> Park                                 | <input type="checkbox"/> Buildings (which building ? )               |
| <input type="checkbox"/> Public Sculptures                    | <input type="checkbox"/> Street Furniture (e.g. bench, street light) |
| <input type="checkbox"/> Maritime museum                      | <input type="checkbox"/> Water Taxi                                  |
| <input type="checkbox"/> Pedestrian Bridge                    | <input type="checkbox"/> Water Fountain                              |
| <input type="checkbox"/> Parking                              | <input type="checkbox"/> Pier 6 Open Concert Hall                    |
| <input type="checkbox"/> Sports play ground (e.g. Rash Field) | <input type="checkbox"/> Tall Ships                                  |
| <input type="checkbox"/> USS Constellation                    | <input type="checkbox"/> etc ( )                                     |

**Q.9) Was it easy to get access to the waterfront?**

- ☐ Very convenient      ☐ convenient      ☐ inconvenient      ☐ very inconvenient

**Q.10) How did you get to the waterfront?**

- ☐ Walking      ☐ Bus      ☐ Subway      ☐ Own car
- ☐ Train      ☐ Bicycle      ☐ etc ( )

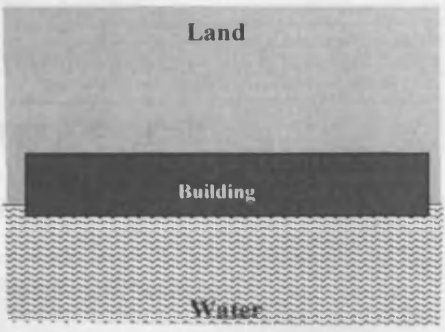
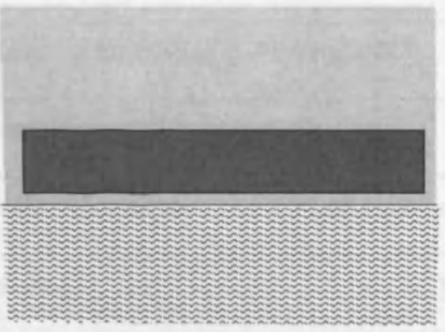
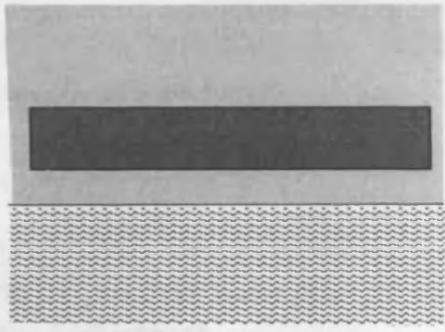
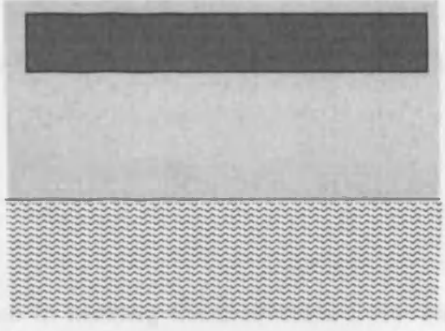
**Q.11) What are suitable buildings and facilities on the waterfront?**

	Very Necessary (1)	(2)	(3)	(4)	not necessary (5)
Aquarium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Museum	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Theatre	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cinema	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Open theatre	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Exhibition & Conference centre	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Restaurant & cafe	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shopping Centre & Department store	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Retail shops	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Transportation (terminal & water taxi)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Marina	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hotel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Education centre (e.g. science centre)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Office building	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Residential house	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sports centre	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Leisure & Entertainment facilities (e.g. paddling boat)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Industrial facilities (e.g. factory)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maritime museum (e.g. submarine, tall ship)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
etc ( Visitor Centre )					

**Q.12) The illustrations below show the layout of the built environment on the waterfront. Which one do you think is the most suitable physical layout between building/water interfaces?**

<input type="checkbox"/> Aquarium	<input type="checkbox"/> Maritime Science Centre
<input type="checkbox"/> Pier 5 Creative Park	<input type="checkbox"/> Museum (Public Works Museum, American Cultural Center)

<input type="checkbox"/> Jutting over water 	<input type="checkbox"/> Along the water's edge 
<input type="checkbox"/> Set back from the water's edge 	<input type="checkbox"/> Set back creating a buffer zone 

Why did you choose that?

( )

Q.13) What is your favourite building or attraction on Baltimore Inner Harbour waterfront?

( )

and why ?

( )

Q.14) What buildings add to the quality of the waterfront ? (please select more if necessary)

<input type="checkbox"/> Aquarium	<input type="checkbox"/> Maryland Science Centre
<input type="checkbox"/> Pier 6 Concert Pavilion	<input type="checkbox"/> Museum (Public Work Museum, American Visionary museum)

<input type="checkbox"/> Maritime Museums (tall ships, submarine, USS Constellation, etc),	<input type="checkbox"/> Harbourplace (shopping & eating)
<input type="checkbox"/> Marina	<input type="checkbox"/> Historical building (e.g. Powerplant)
<input type="checkbox"/> Park (Federal Hill)	<input type="checkbox"/> Restaurant (Rusty Scupper)
<input type="checkbox"/> World Trade Centre	<input type="checkbox"/> Hotel (Renaissance Hotel, Hyatt Hotel, etc.)
<input type="checkbox"/> Residential housing	<input type="checkbox"/> others ( )

**Q.15) Do you think that unique architectural form and design of buildings influence the sense of a cultural waterfront?**

☐ Yes

☐ No

**Q.16) Do you think water plays an important role in making the Baltimore Inner Harbour cultural waterfront?**

(1: very important, 5: not important )

1( )

2( )

3( )

4( )

5( )

**Q.17) What are the most important things to create 'the sense of a waterfront' (please grade 1: high to 7: low)**

- ( ) Visual, physical openness to water feature
- ( ) Ships, boats and water taxis
- ( ) Water-related events and programmes (e.g. Tall ships gathering)
- ( ) Provision of promenades along the water's edge
- ( ) Maritime museum (submarine, tall ship)
- ( ) Wide open space and parks along the waterfront edge

( ) **Water-related historical objects and public art (e.g. anchor)**

**Q.18) Which function of buildings are the most useful to generate cultural use and activities on waterfronts? (please grade 1: high to 7: low)**

( ) Cultural facility buildings (e.g. aquarium, museum, gallery, theatre, etc.)

( ) Leisure and Entertainment buildings (e.g. sports centre, paddling boat)

( ) Eating buildings (e.g. Restaurant, Café)

( ) Shopping buildings (e.g. cloth, book, gift, record, accessory etc.)

( ) Working buildings (e.g. office, public building)

☐ Residential buildings (e.g. housing)

( ) Hospitality buildings (e.g. hotel, inn)

**Q.19) What are your favourite events on the waterfronts (please tick more than one if necessary)**

☐ Cultural waterfront Festival☐ Waterfront market☐ Open theatre☐ **Exhibition**☐ Outdoor Music Concert☐ Boat Racing☐ Weekly Flee market

☐ Water-related Education (e.g. Aquarium)

☐ etc ( )

**and why ?**

**Q.21) Do you think events (e.g. festival, outdoor performance, outdoor concert) are important factors to create a cultural waterfront?**

(1: very important, 5: not important)

1( )

2 ( )

3( )

4( )

5( )

**Thank you very much for your time**

## APPENDIX C

### 4.1.1 The North American waterfront contexts

#### 1) Baltimore Inner Harbour

##### Redevelopment background and process

"Perhaps, no centre city revitalisation project in the US has received as much favourable publicity as Baltimore Inner Harbour" (Kelly and Lewis, 1992: 28). The successful model of Baltimore city centre and Inner Harbour waterfront redevelopment began in the late 1950s and early 1960s with the revitalisation of the rundown Inner Harbour and downtown area after the closure of port-related industries. In 1959, on the basis of strong co-operation between Baltimore city and private developer The Rouse Company, the Greater Baltimore Committee was established to set out an urban renewal plan for downtown Baltimore. This inaugurated Baltimore's renaissance with the development of the 33-acre Charles Centre urban renewal programme, a \$200 million project that included the city's redevelopment of the 240-acre Inner Harbour property (Baltimore Area Convention and Visitors Association, 2002).

In 1965, the success of the Charles Centre, a commercial and mixed-use redevelopment, led directly to the establishment of an organisation called the Charles Centre- Inner Harbour Management Incorporated to initiate the Inner Harbour urban renewal programme. As a result, the Inner Harbour began to undergo a remarkable regeneration over two decades. The construction of the Convention Centre in 1979, Harbourplace in 1980, the world-renown National Aquarium in 1981, and the Hyatt Regency Hotel in 1981 succeeded not only in putting the Inner Harbour on the world-cultural map but also in transforming the derelict waterfront into the centre of city life. The success of Harbourplace was widely reported as "the world's liveliest retail operation in sales per square foot" (Keith, 1991:96). With the individual success of each cultural facility, tourist visits to the Inner Harbour outstripped Disney Land in terms of numbers (Harvey, 1989; Breen & Rigby, 1994; Meyer, 1999). "The Baltimore Inner Harbour won more Urban Land Institute Awards for Excellence (six) than any other project to date, and has been a work in progress since the 1950s" (Millspaugh, 2003: 37). This success story continues and Inner Harbour is visited by academics, practitioners and developers from around the world as a model to emulate.

**Figure 4.2:** The Inner Harbour waterfront from Federal Hill in 1995



Source: Miller (1998, p13)

## Planning, urban design and architecture

The Inner Harbour's success was also attributed to the unique planning and urban design approach and to the relationship between the built environment and the water. The most distinctive concept in the planning process was considering the waterfront as an important public asset in the early master plan. This approach finally led not only to an ample and continuous 7.2 mile waterfront promenade, but also to an important foundation for culture, people and event-oriented spatial structures which relate directly to the success of the rest of the redevelopment process to the present day.

Obtaining physical and visual accessibility between downtown and waterfront gives a unique combination of the built environment and high quality design along the waterfront with cultural facilities - such as aquarium, convention centre, maritime museums and Harbourplace - attracting millions of visitors. In addition, the concept of 'festive marketplace' developed by the Rouse Company, with its people-centred and activity-oriented built environment on the waterfront, succeeded in drawing a critical mass to sustain the waterfront as a national and international public space. Behind the formation of the built environment of the waterfront, a strong political leadership between private and public played an important role in forming the current waterfront, especially in the process of land acquisition, which related to almost a thousand properties, various existing business, and the jurisdiction of 14 local, state and federal agencies (Millspaugh, 2003).

**Figure 4.3:** Master plan of Charles Centre- Inner Harbour by Greater Baltimore Committee Inc.



Source: Meyer (1999, p262)

Above all, detailed design guidance and regulation of architecture and urban design from the beginning of the early master plan enabled to the creation of a sense of the waterfront place for gathering and public uses (Figure 4.3). In particular, the success of the cultural facilities, such as the landmark National Aquarium, Maryland Science Centre, the Harbourplace and Maritime Museum, which attracted hundreds of thousands of people per year through year-round programs/events, also showed the importance of indoor/outdoor events to animate the waterfront space and cultural uses. Furthermore, the long-term, step by step, and small-scale redevelopment approaches based on the master plan eventually reduced the risk of the financial problems of large-scale and short-term development. At the same time, it was possible to have time to adapt to the needs of the time.



The successful redevelopment of a Baltimore Inner Harbour waterfront, especially the redevelopment process and the design and planning approach, was investigated and highlighted by academics and practitioners in terms of redevelopment process, design approaches and management (Urban Land Institute, 1983; Hoyle, Pinder & Husain, 1988; Law, 1988; Torre, 1989; Keith, 1991; Falk, 1993; Hall, 1993; Green, 1993; White, Bellinger, Saul, Hendry, 1993; Breen & Rigby, 1994; Mambro, 1993; Bruttomesso, 1993; Vallega, 1993; Colquhoun, 1995; Malone, 1996; Miller, 1998; Meyer, 1999; Marshall, 2001; Shaw, 2001; Gastil, 2003). The success of Baltimore's Inner Harbour as a cultural waterfront was symbolised by the number of local, national and international visitors each year to the waterfront and the cultural facilities, such as the Aquarium and the Maritime Museum along the waterfront (Figure 6.122)

## **Key findings**

The successful story of Baltimore's waterfront can be summarised under five headings: firstly, the flagship private and public partnership that was developed with coherent political leadership; secondly, a coherent and step by step redevelopment process with a long-term vision; thirdly, recognition of the waterfront as a valuable urban asset and public domain; fourthly, urban design and planning schemes for people-oriented interfaces between the built environment and water with high quality architectural design, mixed-use and multi-functional buildings; and finally, organisation of year-round indoor and outdoor events linking historic artefacts and various types of the built environment. The Inner Harbour achieved great success in terms of its redevelopment process, approach, and design to create the first successful example of the regeneration of a waterfront area into a vibrant cultural quarter that underpinned the city's urban regeneration.

## **2) Boston harbour**

### **Redevelopment background and process**

As shown in Figure 3.18 in chapter three, the Boston waterfront consists of coastline, river and bay, creating "the oldest and most complex waterfronts of the eastern American seashore" (Mambro, 1993: 305). It is a centre of education, finance and scientific research today, but its waterfront has undergone dramatic decline, similar to that of Baltimore and European port cities in the 1960s. The development of the waterfront began with the creation of the residential neighbourhood of Back Bay along the Charles River in the nineteenth century. A series of downtown wharf areas and historic Charlestown Naval Shipyard redevelopments took place for residential and commercial purposes in the mid and late twentieth century (Krieger, 2001: 180 & Gordon, 1999).

In the course of the redevelopment process, BRA (the Boston Redevelopment Authority) and MPA (the Massachusetts Port Authority) played major roles in the development of Boston's waterfront. In 1965, the city produced "its Urban Renewal Plan for the downtown waterfront as part of the city-wide master plan that provides a new vision for Boston as a major regional transportation hub and a government, financial, and entertainment centre of national importance" (Mambro, 1993: 305). In the Urban Renewal Plan, Harbour Plans "developed aggressive programmes and policies to revitalise and plan much of its 7.5 mile

stretch of waterfront sites” (Mambro, 1993: 305). The major redevelopment areas were downtown waterfronts (Figure 4.4) and the underused Charlestown Naval Shipyard.

### Planning, urban design and architecture

The process of Boston’s planning of its waterfront redevelopment began with remarkable transformations of abandoned maritime structures (Krieger, 2001). Then, in the 1960s, the redevelopment of rundown and underutilised waterfronts along Long Wharf, Central Wharf, Lewis Wharf and others “experienced adaptive reuse and /or reconstruction to achieve one of America’s earliest transformations of obsolete maritime infrastructures and historic wharf architecture into modern waterfront residential neighbourhoods” (Krieger, 2001:175). In addition, Harbour Point, Rowe’s Wharf and Fort Point districts, started late in the 1970s and 1980s, experienced high density commercial waterfront redevelopment in Boston (Mambro, 1993: 306).

**Figure 4.4:** Central and downtown waterfront in Boston



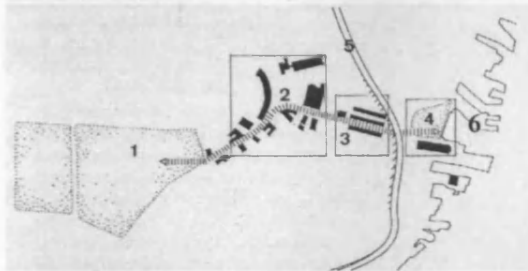
Source: Krieger et al (2001, p146) Note: Description on the picture done by Author

In addition, during the economic boom in the 1980s, the redevelopment of the mixed-use, high quality commercial development of Rowe’s Wharf, which comprises office, hotel, retail and condominium uses, provided a connection between the central business district and the newly developed wharf. “The massive level of development has transformed the city’s skyline from an industrial port into a mini ‘Manhattan’ and has contributed to the region’s economic prosperity in the 1980s” (Mambro, 1993: 305). Although the developers and agencies tried to ensure mixed-use and public realms along the waterfront, the high-rise commercial buildings created visual and physical barriers to an accessible waterfront between the

downtown and downtown waterfront. Also, an elevated highway and heavy traffic flow made another barrier bisecting the waterfront and the downtown.

In contrast to the dense commercial redevelopment of Rowe's Wharf, Christopher Columbus waterfront park, which had well-designed public space and openness, was completed in 1976. With the successful and world-known restoration of the historic Quincy Marketplace near to the park, it provided a strong sense of connection between the park and the city (Breen & Rigby, 1994) connecting the waterfront to the city's historic points, civic centre and back bay (Figure 4.5).

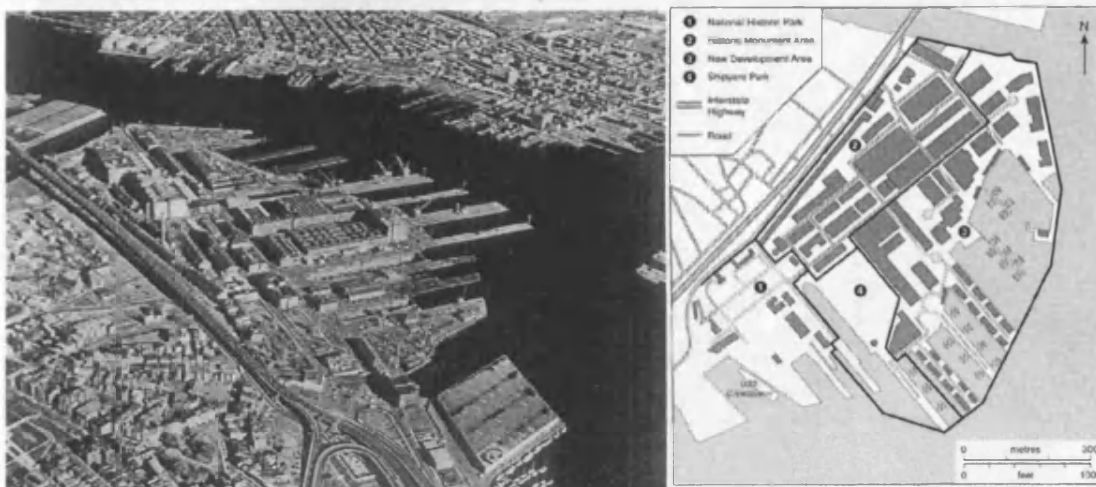
**Figure 4.5:** Boston's walk to Christopher Columbus Waterfront Park connecting the city's historic place and civic centre



Source: Meyer (1999, p275). Note: 1.Boston Common, 2.Civic Centre, 3.Faneuil Hall & Quincy Market, 4.Christopher Columbus Waterfront Park, 5.Central artery road, 6. Water

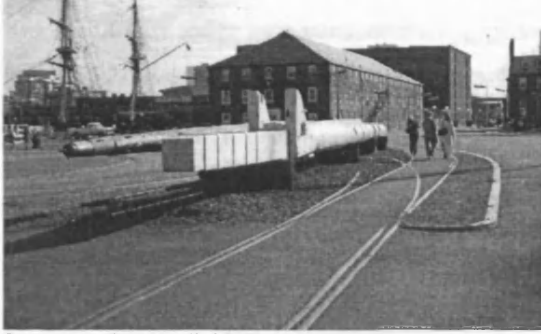
The redevelopment of 106 Acres Charlestown Naval Shipyard, which served as a US navy shipyard, closed in 1974 by the BRA, succeeded in creating a balance between the historic importance of the shipyard and commercial mixed use, preserving public space and accessibility (Figure 4.6). Gordon (1997, 1999) argued that it was a successful case of the 'symbiosis' between commercial uses and public vision of the waterfront space, which preserved historic place (Figure 4.7). The urban design scheme was divided into four different characteristics and opportunity areas – historic monument, new development, shipyard park and national historic park – and "achieved substantial public space and other amenities that are highly accessible to residents and visitors with extensive coordination among local, state and federal agencies" (Mambro, 1993: 306; Gordon, 1999).

**Figure 4.6:** Boston Naval Shipyard and Charlestown in the year of closure in 1974 and the urban design scheme which divided it into four characteristic areas.



Source: Gordon (1999, p912 and 915)

**Figure 4.7:** The preservation of historic artefacts



Source: Author (April, 2002)

### **Key findings**

The Boston waterfront redevelopment might be a valuable case, like Baltimore, in terms of the two different development approaches used at Rowe's Wharf and Charlestown Naval Shipyard. Rowe's Wharf illustrated the successful regeneration of an obsolete waterfront, transforming the image of the city and supporting an economic boom. But the commercially oriented redevelopment approach resulted in barriers between the downtown and the waterfront. Although the urban design concept tackled a public accessibility and public use of the waterfront space, there was an imbalance between public and commercial uses. This is evident through a comparison of Rowe's Wharf and neighbouring Christopher Columbus Park (Figure 4.4). In the case of Charlestown Naval Shipyard, the importance of public use, preservation of historic heritage, and a design approach focused on connecting the community to the waterfront. The redevelopment approach eventually succeeded in creating an important public domain and enhancing the image of the harbour.

### **3) New York's waterfront**

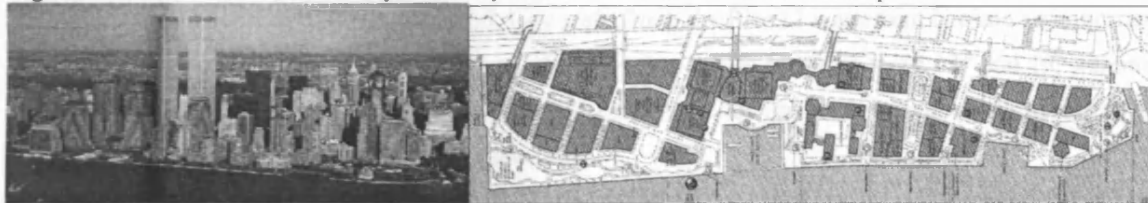
Unlike other waterfronts, New York's waterfront has been overwhelmed by the dominant images of skyscrapers and by New York as a world financial and cultural hub (Plunz, 1993; Meyer, 1999; Gastil, 2002). Plunz (1993: 311) argued that "New York's metropolitan formation (from 1850 onward) was as a modern port with modern industry, which completely usurped use of the waterfront". In addition, under the leadership of the Mayor of New York, Robert Moses, from the 1930s to the 1950s, the waterfront area was the site of an important artery road for cars. As a result, the use of the waterfront was dominated by the highway along the East River and Hudson River (Plunz, 1993; Seymour, 1993; Gordon, 1996; Meyer, 1999). In the words of Meyer (1999):

Under the leadership of Robert Moses, a 'power broker' who took to the new broker state like a fish to water, the city and state of New York to obtain about one-seventh of the federal funds set aside for roads in the president's New Deal. The waterfront, in particular, was to be a key player in creating the new collective highway experience and in transforming the city (Meyer, 1999: 212).

Consequently, it can be said that the character of the transformation of New York's waterfront area was hindered by its usage as a transportation corridor, and there was little interest in its potential as a public and cultural domain until the 1970s. Jacobs (1961) criticised not only Moses' development approach to New York City, which was characterised by the construction of the expressway and elevated highway along the waterfronts but also the blight of the modern urban planning approach. She advocated social, cultural and economic diversity which "forms the essence of urban culture" (quoted in Meyer, 1993: 236), arguing that Moses' macro-scale construction of expressways resulted in spatial division and social segregation.

Searching for new ideas in urban planning during the 1970s, the idea of public domain in New York City created a focus on the potential sites of public use of the waterfront. In the course of this movement, two waterfront redevelopments were initiated by the City. One was Battery Park City on the Hudson River (Figure 4.8). The other was South Street Seaport on the East River (Figure 4.10). The Battery Park City waterfront was created by reclamation from the debris from the World Trade Centre construction site. The latter was the conservation-led redevelopment of Pier 17 and historic Fulton Market.

**Figure 4.8:** The view of the Battery Park City waterfront in 1979 and its master plan



Source: Powell (2000, p132 and p134)

### **Planning, urban design and architecture**

The Battery Park City Authority (BPCA) was established in 1966 to implement the Battery Park City waterfront project. "Although a master plan for the 37 hectare site was approved in 1969, the project was hobbled by political, financial and design problems and the site remained a sandy wasteland for more than a decade" (Gordon, 1996). Based on the master plan (Figure 4.8) by Alexander Cooper and Stanton Ecksut, the redevelopment, which was completed in 1979, consisted of residential units, open parks and a square, a unique 70-foot wide waterfront promenade along the Hudson River, and office blocks.

The master plan focused on the achievement of public access to the waterfront, providing a series of squares along the promenade with commercial buildings and residential blocks (Seymour, 1993). The importance of the public realm was emphasised in a 92 acre complex of housing and office buildings "in which parks, waterfront promenades, street and public art rank as important as the buildings themselves" (Goldberger quoted in Breen & Rigby, 1994: 281). According to Gordon (1996: 263), "the Battery waterfront city's urban design and public spaces have been acclaimed as among the most influential achievements of the 1980s." Despite the achievement of public space with quality street furniture on the waterfront, the Battery Park City was criticised for its luxury and high income residential developments for the wealthy, causing social segregation and "lacking any sense of urban community" (Breen & Rigby, 1994:281).

**Figure 4.9:** The Battery Park City waterfront promenade, office and residential units in the background. However, there is found a lack of diverse activities and a sense of place.



Source: Author (April, 2002)

The little sense of community and the lack of diversity resulted from a “ghetto for the rich little more than a high density suburb, whose chief cultural advantage is a short commute and lacking any sense of an urban community” (Breen and Rigby, 1994:281). While the Battery Park City waterfront was created on newly reclaimed waterfront land, South Street Seaport waterfront was initiated to convert the nineteenth century historic pier 17 and historic Fulton Market into a dining, shopping and entertainment cultural quarter (Figure 4.10). It was another stereotypical example of the notion of the ‘festive marketplace’ on the waterfront. In contrast to the Battery Park City waterfront, the Pier 17 waterfront became an important place for New Yorkers and visitors because of the historic richness of the restored 18<sup>th</sup> and 19<sup>th</sup> century architecture in the historic market place, and the success of the festive marketplace, which consisted of dining, shopping and entertainment on the waterfront.

In addition, the strict design control, such as height, for the historic buildings along a Fulton Street and the adaptive reuse of the historic ship and pier for museums and entertainment facilities enriched the sense of leisure and culture. However, the 1950s and the 1960s elevated highway and artery road bisects Fulton Street and pier 17 causing vivid physical and visual accessibility. However, the 150,000 square feet of three-story retail mall on the pier, like Harbourplace in Baltimore Inner Harbour, became an important visual and physical magnet for meeting and gathering.

**Figure 4.10:** South Street Seaport, which consisted of the historic Fulton Market (in the background) and Pier 17 (in the foreground).



Source: Author (April, 2003)



## Key findings

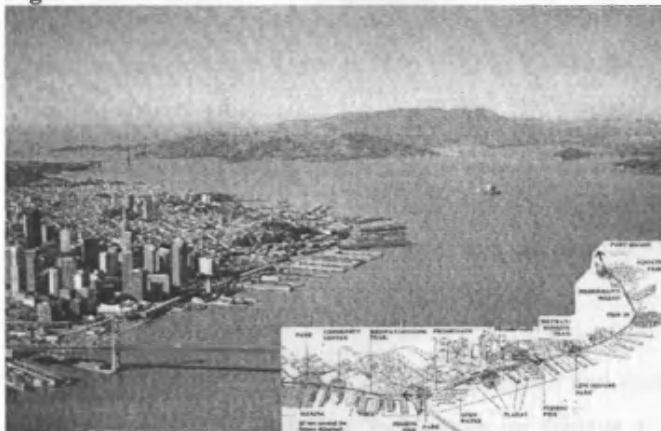
Two examples of waterfront redevelopments provide several important lessons. Firstly, the importance of waterfront accessibility from the city to the water's edge through urban design was a key to success. Secondly, as the Pier 17 waterfront showed, regarding the vitality of the waterfront, both the openness and accessibility of the waterfronts and the mixture of different functions of buildings and the combination of the old and new needed to be considered. Thirdly, the importance of historic artefacts - consisting of buildings, objects, and places - clearly shows that they played an important role in creating a successful waterfront redevelopment. Finally, the design scheme and control mechanism for creating public use of the waterfront and accessibility at an early stage was important for long-term success.

## 4) San Francisco

### Redevelopment background and process

Since the 1900s, San Francisco has been characterised not only by the most scenic and beautiful waterfront on the west coast of the United States but also by its important commercial harbour activities and recreational uses similar to those of the east coast American cities (Meyer, 1999). First of all, "San Francisco has an incomparable natural advantage in the beauty of its harbour than any other American cities on the water" (Gastil, 2001:94). The construction of the Golden Gate and Bay Bridges in the 1930s became inseparable images from San Francisco's waterfront (Figure 4.11).

**Figure 4.11:** Aerial view of San Francisco and San Francisco Bay

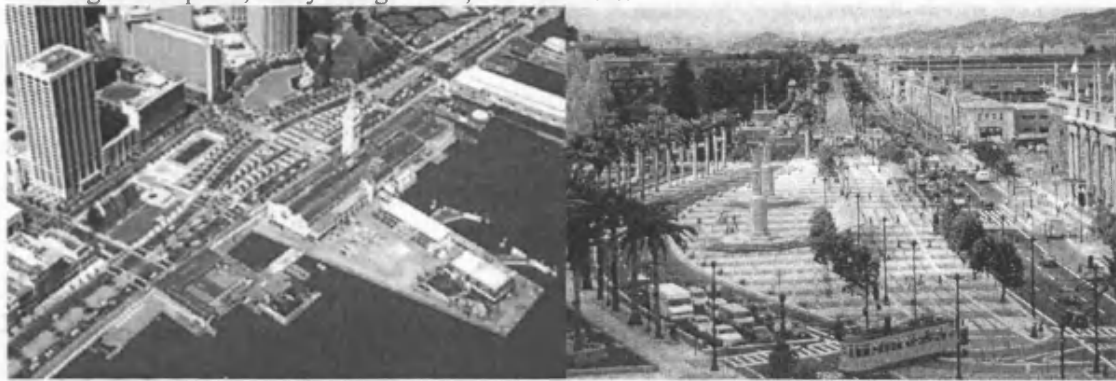


Note: Meyer (1999, p249 and p250) and graphically edited by Author

In 1968, the Embarcadero Centre waterfront redevelopment plan, which consisted of five building blocks in the downtown area at the end of Market Street and the waterfront, was produced by the city planning department (Figure 4.12). It created a quality urban public plaza, the Harry Bridge Plaza, near to the water and connecting the historic Ferry Terminal building. After the Loma Prieta earthquake in 1989, the chance arose to demolish the Embarcadero waterfront freeway, removing the visual, physical and psychological barriers between the city and the water. This was accomplished in 2000, providing the revitalisation of the scenic waterfront and quality urban public space. The reconstruction of the Embarcadero Centre waterfront was an exemplary, large-scale, urban waterfront project (Meyer, 1999).



**Figure 4.12:** A view of Embarcadero Centre waterfront which consisted of part of the downtown, Ferry Building Marketplace, Harry Bridge Plaza, Pier and water



Source: [www.sfpavilion.org](http://www.sfpavilion.org) (left) and Gastil (2002, p94) (right)

The 303 acre Mission Bay waterfront was a large scale project. It was recognised as a potential area for development, south of the Embarcadero waterfront, as early as 1972 for a combination of residential communities, parks and recreation, hotel and research campus. "San Francisco's Battery Park City, Master Plan, commissioned by the developer and completed by Skidmore, Owings & Merrill (SOM) in 1990, represents the refinement and elaboration of the 1987 Master Plan commissioned by the City of San Francisco" (Kriken, 1993: 327).

### **Planning, urban design and architecture**

The most distinctive character of the San Francisco waterfront redevelopment process lay in the comprehensive urban design plan that had been drawn up to preserve the waterfront areas. The design guidance was made into law in 1969 to protect the scenic water's edge of the San Francisco Bay from urbanisation and industrialisation. In addition, the essence of the Urban Design Plan produced by the City Planning Department in 1971(updated in 1987) was to maximise the image of the city within this scenic waterfront (Meyer, 1997; Kriken, 1993). In other words, it can be said that the overall design guidance focused on preserving the scenic waterscape as a primary source, creating the city's identity and urban waterfront design elements.

The plan consisted of detailed zoning regulations and design guidance on elements such as the shape, colour and height of buildings. In addition, to achieve a sense of the waterfront from the city, public accessibility to the waterfront using parks, open spaces and new streets was a major consideration in the development process. Furthermore, the shoreline was protected by law and 1,000 feet from the water's edge preserved for public use (Gastil, 2002). Despite strict design guidance, architectural diversity and design creativity was allowed to enhance the liveability of the place and the quality of the waterfront space (Kriken, 1993). Intense public involvement in the process of the planning and design of the waterfront also played an important role in improving the quality of the waterfront space. As a result, "San Francisco boasts the most sophisticated form of urban design in America" (Meyer, 1999: 244).

Similar design guidance, which put a high priority on protecting the waterfront and public uses, was applied to the large-scale Mission Bay project in the 1990s. Based on a design principle which comprised

three themes – an accessible waterfront, a sense of place through patterns of streets, and parks and architectural diversity, the project aimed to create a sense of place through design guidance and regulations, using streets, parks, and public open spaces as structural elements to connect waterfront spaces and communities with architectural diversity.

### **Key findings**

The major lessons from the case of the San Francisco waterfront redevelopment can be drawn from the advocacy of the importance of the waterscape to the identity of the city in the urban design master plan for the waterfront. This was a good example of the promotion of the city's image using water features in the redevelopment of the waterfront and emphasizing the visual characteristics of the design. Another lesson might be the strict design guidance, which was enacted by law, to achieve a sense of place and public space, especially using parks, squares and streets with various architectural styles. The redevelopment also identified the importance of the balance between the strict design guidance and the design creativity in urban design, architectural design and the planning process.

## **5) Toronto Harbourfront**

### **Redevelopment background and process**

"Port and cities are a very important part of Canadian life, and have been for a long time. The development of Canada is rooted in maritime exploration and trade, and in the foundation of coastal settlements which provided the initial basis for movement into the interior" (Hoyle, 1993: 333). Toronto experienced a decline of port-related industries on the waterfront similar to that in many port cities in both Europe and America. The biggest city in Canada also experienced a similar decline with spatial and functional segregation between downtown and the waterfront because of the railway yards and the construction of an elevated expressway along the lakefront. In 1921, a waterfront Development Plan by Toronto Harbour Commission was planned for "the whole waterfront for port, industrial, transportation and recreation purposes, and systematic lake-filling [reclamation] along the wateredge" (Desfor, 1988: 97). In 1972, Harbourfront, a public agency, was established and given jurisdiction over 35 hectares of central waterfront to be converted to parkland.

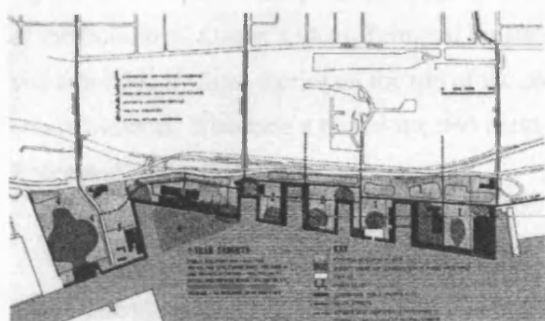
**Figure 4.13:** Aerial view of the Harbourfront and Financial District



Source: Crombie (1993, p340)

The major waterfront development of Toronto took place in the abandoned Harbourfront in the early 1970s (Figure 4.13). "The 92 acre Harbourfront site is the western half of Toronto's central urban waterfront"(Gordon, 1997: 64). The Harbourfront redevelopment plan was designed by the Harbourfront Corporation to transform Toronto's underused, deteriorating central waterfront into a mixed-use urban waterfront quarter consisting of "a unique urban neighbourhood, complete with lakefront parks, recreational facilities, low-rise commercial and residential buildings, shops, restaurants, and marina" (The Urban Land Institute, 1983: 111). The initial approach to the creation of public parks and public programming was threatened by the commercially oriented high-rise buildings that were built during the 1980s (Breen & Rigby, 1993, Gordon, 1996). Public protest over the new high-rise buildings led to demands for more parks and a moratorium on development (Baird, 1993 in Gordon, 1996: 64).

**Figure 4.14:** Land use plan and four key areas of the Harbourfront Project



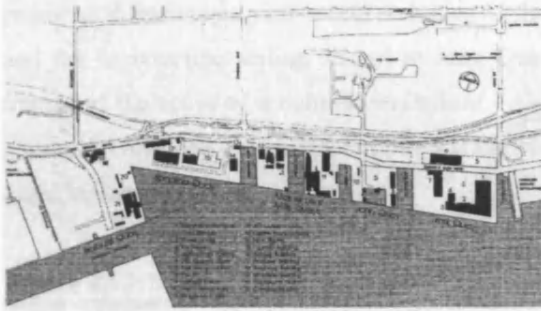
Source: Urban Land Institute (1983, p114)

### **Planning, urban design and the built environment**

The distinctiveness of Toronto's Harbourfront redevelopment planning process was attributed to community involvement and the protest against high-rise commercial development which threatened the potential use of the waterfront as a public space. In addition, public access and the provision of a waterscape along the water's edge was a key development objective for the Harbourfront project, which consisted of the five redevelopment areas (The Urban Land Institute, 1983, Breen and Rigby, 1994) (Figure 4.14):

1. York Quay – the city's active indoor events/programs areas in York Quay Centre and Queen's Quay Terminal buildings, and public activities
2. John's Quay—dominated by marina activities (e.g. a harbourside sailing school)
3. Maple Leaf Mills Quays - Residential development; apartment structure (8-10 floor scale), parking facilities, public amenity at the water's edge (café, shops, stores and restaurants)
4. Spadina Quay-residential and public uses, a railway museum in 1974, marina development and park
5. Bathurst Quay - adventure and creative playgrounds during the summer; busiest ferry dock and residential development

**Figure 4.15:** The major development areas of the Harbourfront Project



Source: The Urban Land Institute (1983, p112)

Amongst them, York Quay waterfront redevelopment not only provided a remarkable example of the reuse of historic warehouse buildings for cultural and commercial activities; it also illustrated the significance of events and programming in creating and sustaining a sense of place on the waterfront. One of the buildings, Queen's Quay Terminal building, built in 1927 as a terminal warehouse, was converted and extended by three stories on the top of the old warehouse to provide retail and office space as well as condominiums. It became a mixed-use and multi-functional complex in 1983 (Figure 4.16). According to Breen and Rigby (1994: 50):

At its peak in the early 1980s, the events programming housed in the three facilities were exemplary. At one time Harbourfront Corp. had five programming departments that managed to fill the calendar 12 months a year, 7 days a week, and 16 hours a day. In all, Harbourfront Corp. ran as many as 4000 separate events that attracted 3 million people in one year (Breen & Rigby, 1994: 50).

**Figure 4.16:** Queen's Quay Terminal building reuse of historic terminal warehouse as a multi-purpose gathering place attracting 3 million people per year



Source: Breen & Rigby (1996, p80)

York Quay Centre was converted from a warehouse – a venue for arts, crafts, performances, concerts, film studio, children's centre, etc. – and became the heart of the city's socio-cultural, entertainment and leisure activity area. Art facilities in York Quay drew public gatherings and sustained the vitality of the waterfront.

The Harbourfront's diverse use patterns, public facilities, and marina activities along the waterfront promenade generated year-round activities for local residents and tourists. In particular, marina activities and the harbourside sailing school in John Quay created and enhanced a sense of the waterfront and improved the sense of a cultural waterfront. Above all, the public use of the waterfront redevelopment approach enhanced the enjoyment that a waterfront can provide (Breen & Rigby, 1994, 1996; The Urban Land Institute, 1983).

**Figure 4.17:** Year-round use of the Harbourfront at York Quay attracted people.



Source: The Urban Land Institute (1983, P121)

The development process went well in the 1970s when David Crombie was mayor but then a new regime got into power and commercial developments were permitted along the waterfront. Huge 30-40 story hotels and condominiums blocked the strategic view of the Toronto islands from the rest of the central city. This was a huge psychological and physical barrier. These hotels could easily have been built on the other side of the street from the waterfront, affording the same views of the lake at the same time permitting public views and access. Also, public events were not really so common or well organised because of leadership and funding problems (Wendy Clarke who grew up in Toronto, London, Interview, April 2005)

## Key findings

Although it is difficult to summarise the elements of the large-scale Toronto Harbourfront redevelopment, there are several key lessons. It was the importance of creating public uses and having public involvement in the redevelopment process that prevented a totally profit-oriented commercial waterfront development. The significant role of indoor and outdoor events and programmes - three million visitors to Queen's Quay, the sailing school and marina activities - transformed the image of the abandoned waterfront and created a cultural ambience on the waterfront. The successful organisation of these events and programmes, provided a valuable lesson in that non-physical aspects, such as events and programmes were equally important in the waterfront redevelopment process alongside the construction of the physical built environment. These events and programmes were an essential part of the cultural use of the waterfront. Finally, the adaptive reuse of the industrial architecture and historic artefacts was an important step in connecting the past to the present in the city's history, restoring local identity to the waterfront while providing new commercial and cultural uses. However, the importance of political leadership and funding for sustaining robust waterfront activities and long-term success is identified.

## 6) Vancouver waterfront

### Redevelopment background and process

Research on waterfront redevelopment in Canada effectively started in the later 1960s. In addition, during the 1980s and 1990s, the waterfront redevelopment phenomenon and research were well established and drew attention from many related disciplines (Hoyle, 1995, 1999). If the Toronto waterfront is one of the examples of east coast Canadian waterfront redevelopment, Vancouver is an example of west coast Canadian waterfront redevelopment. The redevelopment of the Vancouver waterfront began after the World Expo event held in 1986 in a similar manner to the Yokohama Minato Mirai 21 waterfront redevelopment, which occurred after the World Expo. "Since Expo'86, Vancouver has been carefully and strategically remaking itself. Its waterfront redevelopment efforts are the focus of considerable international interest" (Marshall, 2001: 19). Three major waterfront redevelopments - Canada Place, Granville Island, False Creek Waterfront, and Stanley Waterfront Park - were identified by academics and researchers as examples of the case of Vancouver waterfront redevelopment (Figure 4.18).

**Figure 4.18:** View of Vancouver waterfront – Canada Place, Granville Island, and False Creek



Source: Waterfronts in post-industrial cities (Marshall, 2001). Note: The four waterfront locations were added by Author.

Waterfront redevelopment in Vancouver started after Expo' 86 through the redevelopment of 204 acres in the False Creek waterfront area which consisted of (Figure 4.19): 17 hectares of parkland, community related amenities such as childcare, school sites and a local community centre; the provision of twenty percent social housing; and continuous walking and bicycle routes connecting the downtown waterfront, False Creek waterfront, Stanley Park waterfront and Canada Place (Marshall, 2001). Granville Island was designated a public space. Southern False Creek waterfront was developed into a combination of residential, commercial and park areas.



**Figure 4.19:** A model of False Creek Waterfront redevelopment and Granville Island



Source: Left: Marshall (2002, p24), Right: Breen & Rigby (1996, p12)

### Planning, urban design and the built environment

Several significant aspects of the Vancouver case lay in the planning and design process. One aspect was the continuous walking and cycle route system that stretched from the downtown area to False Creek and Stanley Park waterfronts creating a corridor for public use. The other aspect was the high density and high rise residential and commercial developments that were permitted along the waterfront (Figure 4.20). A third aspect, like many other Canadian waterfront redevelopments, was the urban community groups' involvement in the development process, which influenced the shape of the urban waterfront (Gordon, 1996, 1997; Holye, 1995, 1999; Marshall, 2001). In the process of permitting commercial development along the waterfront, the developers had to consider "a certain amount of floor space and specified a package of public benefits" (Marshall, 2001: 25).

**Figure 4.20:** The harmony between high-rise residential buildings and open spaces and public access routes in False Creek



Source: Google Earth (2005)

Marshall (2001) argued that the success of the Vancouver waterfront could be considered from two perspectives – the design approach and the planning process. The successful design approach made it possible to balance the uses of the inner city waterfront with the high-density development patterns, streetscape and public space. In terms of the planning process, this systematically comprised several stages. "These include the creation of a policy statement to guide development planning, the creation of an official development plan and, finally, the rezoning of a site to permit development in accordance with the established policies" (Marshall, 2001: 23).



## **Key findings**

Lessons from the Vancouver waterfront cases might be the balance and negotiation between the commercial development approach and the public value of the waterfront. Although high-rise residential building overwhelmed the waterfront (False Creek), public accessibility and the network of park systems is well connected and preserved along the overall waterfront. The dedication of the downtown waterfront space to a spacious public park and public access to Granville Island and Stanley Park waterfront were characteristics of the Vancouver waterfront redevelopment.

## **4.1.2 European waterfront contexts**

### **1) The UK experience**

#### **Redevelopment background and process**

The decline of waterfronts in the UK was predominant following economic and technological change in port-related industries. According to a survey conducted by URBED in 1978 and 1989 in the UK:

In 1978, 22 city ports in Britain found a general picture of inactivity, with the main problems being dereliction, and loss of jobs, compounded often by isolation and an ageing population. In contrast, over 10 years later the picture is much brighter, the survey done by URBED in 1989 discovered over 90 schemes that were underway. Seventy percent were areas of over 10 acres, 45 of these were on rivers, 27 on canals, and the balance were ports and harbour (Falk, 1993: 23).

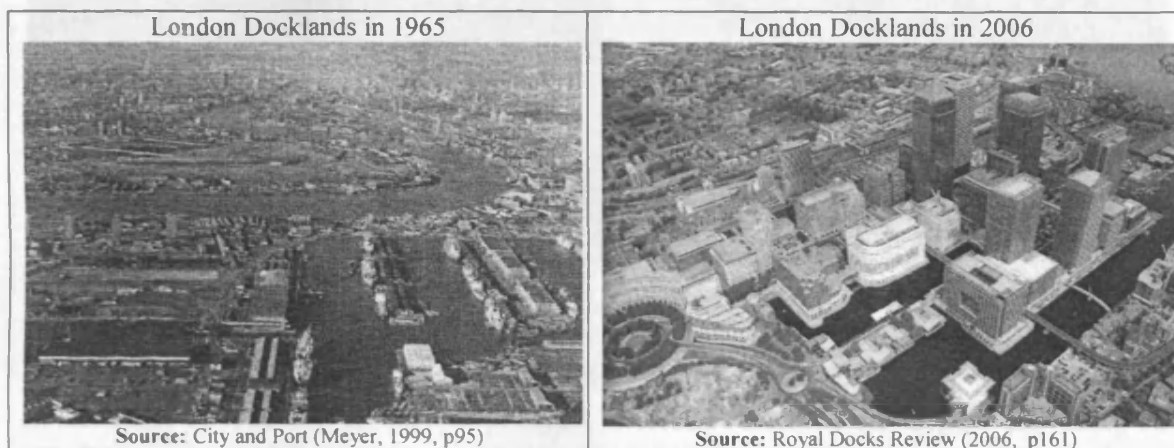
In Western European countries, the UK has played a pioneering role in the redevelopment of abandoned and under-utilised docks and maritime quarters. Interestingly, one of the characteristic redevelopment patterns in the UK was that most of the redevelopment took place in dock areas (Falk, 1992; Owen, 1993: 15; Jones, 1998). “The success and failure of British urban regeneration policy has been nowhere better illustrated than in the various dockside and riverside developments that have taken place in the last few years” (Colquhoun, 1995: 72). As a result, “regeneration of British docklands has been perceived as a key element in the wider processes of UK urban policy and urban renewal” (Jones, 1998: 434).

Swansea dock and seaside in the 1970s, Salford Quay in Manchester in 1981, London Docklands in 1981, Brindleyplace in Birmingham in 1987, Bristol Harbour in 1982, Cardiff Bay in 1987, Quayside on the river Tyne in 1990, and Temple Bar in 1991 produced useful lessons, being the subject of many essays, research papers and studies, and produced a useful model for future schemes. The success or failure of the waterfront redevelopment has been identified in the diverse riverside, dockside and harbourfront examples. Some waterfront developments have become models of best (or worst) practice, studied by scholars and researchers and emulated by developers.

## Planning, urban design and the built environment

London Docklands was internationally known as the largest abandoned dockside area in Europe in the 1980s (Falk, 1992; Gordon, 1996; Jones, 1999). It consisted of four areas – Wapping, the Isle of Dogs, Surrey Docks and Royal Docks (Colquhoun, 1995) – each of which has been developed using different patterns. The 425 acres of the Isle of Dogs (Figure 4.21), the main docklands development area, was heavily criticised for its profit-driven commercial redevelopment approach, resulting in high density, an area of poor liveability and poor pedestrian access, a lack of public space, and the exclusion of the existing local community in the redevelopment process. In addition, the large-scale of the redevelopment coupled with the lack of a long-term plan meant that the Isle of Dogs redevelopment did not realise the great potential of the waterfront.

**Figure 4.21:** London Docklands before and after



Unlike London Docklands, Manchester's Salford Quays, after the adoption of a redevelopment plan in 1985, illustrated that "a high standard of urban design created the confidence for local developers to start the process of regeneration with housing and offices" (Falk, 1993). Gentrification of the existing housing and the designation of a leisure activity zone was accompanied by high quality infrastructure and the design of landscape, waterfront and architecture (Pidwall, 1993; Law & Grime, 1993). Efficient high quality infrastructure of the road system, which was a part of the inner city regeneration (Law & Crime, 1993:93), and good pedestrian circulation and accessibility to the dock (Pidwill, 1993: 98) led to the important foundation of a cultural renaissance during the 1990s and the 2000s. The addition of multi-functional cultural facilities in the form of the Lowry Centre in 2000, which consisted of theatres, galleries, bars, cafes conference and hospitality facilities, attracted over one million visitors during the first 12 months (Salford City Council, 2005). In 2002, the iconic feature of the Imperial War Museum with the Lowry Centre created a distinctive cultural destination on Greater Manchester's waterfront. Salford Quays became an exemplary model of inner city dockside regeneration and continues its cultural renaissance (Figure 4.22).

**Figure 4.22:** A view of Salford Quays in the 1960s (left), the 1990s (right) and the 2000s (bottom, Lowry Centre) respectively.



Source: The two pictures above( [www.art.man.ac.uk/Geog/salfordquays/](http://www.art.man.ac.uk/Geog/salfordquays/)) below (Salford City Council, 2005)

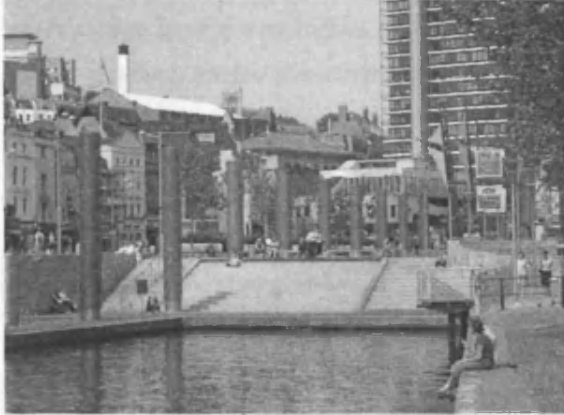
In Bristol, 66 acres of the Floating Harbour areas, located in the heart of the city centre, underwent a dramatic physical transformation, starting with the conversion of underutilised Victorian warehouses into an arts centre in 1982 (Figure 4.23). In particular, the recent concept of the ‘Legible City’ along the harbours, was included in Bristol City Council’s waterfront regeneration strategy to create high quality urban public space, pedestrian routes, street furniture, public art and architectural diversity along the harbourfront (Bristol City Centre Strategy 1998-2003, 2001). Careful consideration of the urban design approach regarding the elements, such as connection of water, high quality public spaces and public art along the streets (Figure 4.24) resulted in a transformation of the area into one that is “now a continuous source of attraction, with the arts playing a major role” (Falk, 1993: 66). Above all, the connection of high quality public realms such as public spaces, pedestrian routes and waterfront to waterfront, especially public arts and sophisticated street furniture, enhanced the legibility of the city (Figure 4.24).

**Figure 4.23:** Panoramic view of Bristol Float Harbour before development and after



Source: left: Design Control in Bristol 1940-1990 (Punter, 1990, front cover), right: Bristol City Council (2001, p2)

**Figure 4.24:** Bristol harbour integrated into high quality urban space with installation of public art on the



Source: Author (14:06, 26<sup>th</sup> May 2004)

The regeneration of the 17 acre mixed-use Brindleyplace, abandoned in the 1970s after the closure of manufacturing factories and wharfs along Gas Street Canal in Birmingham, exemplified the importance of urban and architectural design schemes. Like the Bristol case, the emphasis on urban and architectural design schemes to create a high quality public domain led to the production of a new centre of attraction and a gathering place in Birmingham's city centre.

Latham and Swenarton (1999:8) argued that "commitment to design quality and richness was integral to the whole development from master planning through to the public spaces and buildings." Restaurants, cafes, offices, cultural facilities such as the National Indoor Arena, the Convention Centre and the Aquarium along with a high quality of canal streetscape created major daytime and evening activity areas (Figure 4.25). In addition, a three year purification process of the polluted canal system improved (Breen & Rigby, 1996) and provided a fundamental foundation for public use of the canal.

**Figure 4.25:** Canalside at Brindleyplace in Birmingham. A view under construction in 1999 (left) and sophisticated canalside buildings.



Source: Latham & Swenarton (1999, p6)



Source: Author (January, 2004)

The Cardiff Bay waterfront redevelopment was characterised by its scale. There were 1,100 hectares in Europe's largest urban waterfront redevelopment, which was established in 1987 by Cardiff Bay Development Corporation for the new Millennium. The Millennium waterfront project consisted of hotels, the Mermaid Quay shopping and leisure facilities, the Oval Basin outdoor events arena, an arts centre and

a site for the Welsh Assembly. The conversion of the Oval Basin into an outdoor events arena on the water's edge gave a tremendous experience of the sense of the waterfront and its public domain. The design approach for the waterfront space development led by Llewelyn Davies was "to create a sense of place through blending of the new development with the improvement of the best of the old environment and buildings" (Colquhoun, 1995:99). Construction of the Cardiff Barrage eventually created 12.8 kilometres of permanent water's edge that linked historic buildings, parks, public space and waterfront promenade, providing a great waterscape.

**Figure 4.26:** The master plan of the Inner Harbour n(top). The Oval Basin for outdoor events was converted from a dock basin after land refill (bottom)



Source: Green (1993, p304)



Source: left: Planning (June, 2003), right: Author (June, 2003)

The large-scale development of Cardiff Bay "brought wide social, economic and environmental benefits to declining urban areas. However, in some, much controversy has been caused, and in some others, clear social disbenefits have unfortunately arisen" (Jones, 1998: 436). Although the functional and physical accessibility from existing downtown and the large urban waterfront needed to be improved, the waterfront redevelopment achieved the revitalisation of a rundown area and urban cultural quarter with a superb natural landscape.

During the 1990s and the beginning of the new millennium, waterfront redevelopments in the UK are still active as catalysts to revitalise economic and socio-cultural life and improve the image of the city. Interestingly, recent waterfront redevelopment trends in the UK have been characterised by cultural uses to enhance the status of the city in the world. For example, the recent bid for 'European Cultural Capital



for 2008' included six British cities – Bristol, Birmingham, Cardiff, Liverpool, Oxford, and Newcastle-Gateshead – all demonstrating that a cultural perspective on waterfront public space developments was a key driving force in their city's development plan (Figure 4.27). Waterfronts are identified as having great potential for an improved public domain and as a place for cultural activities.

**Figure 4.27:** Six cities on the waterfront that are competing for Cultural Capital of Europe for 2008



Source: planning (June, 2003)

### Key findings and conclusions

UK waterfront redevelopment experiences were various in terms of scale and planning and design approaches. They took place on different waterfronts, from canals to docks, rivers and harbours. However, the majority of waterfront redevelopments took place on docksides in London, Manchester and Liverpool. In general, "waterfront developments in the UK were mixed-use which included the conversion of old warehouses into offices, workshops, hotels, leisure facilities, cafes, and restaurants" (Colquhoun, 1995:72). It was also found American waterfront redevelopment experiences were applied in the UK, as in other parts of the globe. In particular, Baltimore's concept of the 'festive marketplace' was found in many cities such as Brindleyplace, Cardiff, Liverpool and Portsmouth. Furthermore, recent waterfront redevelopments have focused on leisure and culturally oriented activities.

The UK experiences provide several valuable lessons: the danger of large-scale and commercially driven waterfront redevelopments exemplified by London Docklands; the importance of long-term vision and implementation using an incremental and step-by-step redevelopment approach, found in the Salford Quays; the importance of the waterfront space for enhancing the image of the city; and as a valuable restructuring element in city design and found in the cities that applied to be European Cultural Capital for 2008. Many cases, such as Brindleyplace, Bristol, Wapping and Manchester, show that sophisticated design schemes and the conversion of maritime heritage into modern use and small-scale (human scale) approaches were often found in successful UK waterfront redevelopment. At present, it seems that waterfronts in UK cities take the lead in the economic and socio-cultural regeneration of the cities.

## 2) Barcelona harbourfront

The redevelopment of the Barcelona waterfront started with the plan to design Passeig de Colom and Moll de la Fusta by Manuel de Sola-Morales in 1980 (Meyer, 1997) (Figure 4.28). “Barcelona’s rise from regional capital to world city took place within the space of two decades, with the 1992 Olympic Games as a landmark event in the process of regeneration and renaissance” (Powell, 2000: 230). After Franco’s death, creating a unique cultural identity and recapturing the public domain in the Catalan region, suppressed by the Franco regime, was a key concern in reorganising and regenerating the existing urban physical structure under Bohigas, who played a significant role in creating the structure plan of the Catalan region (Meyer, 1999).

Bohigas main concern was for the “reassertion of the public domain, [...] ‘the public space is the city’, has been fundamental throughout” (Powell, 2000: 230). As a result, “from the beginning, attention aimed at Barcelona’s port and seafront was based on the position of the waterfront both as the city’s most explicitly territorial feature” (Meyer, 1997:151) and the great potential of the public domain to acquire new identity. The great concern in creating the public domain led to the regeneration of the old harbourfront – Passeig de Colom (Moll de la Fusta), Moll d’ Espanya, La Barceloneta beach and Poble Nou, and the Olympic Village at Poble Nou (Figure 4.28 and 4.29).

### Planning, urban design and the built environment

Three key planning and urban design concepts – connection between the water and the city, activity-oriented uses such as recreational and entertainment, and preservation of the characteristic of the heritage of the harbourfront - were applied to the regeneration of old ports (Rodriguez-Martin, 1993). Due to the effort to create a new identity for the Catalan region through a new reorganisation of the public space, Barcelona’s waterfront development was characterised by the highest quality of public space design and a distinctive water’s edge that was created to link city and water.

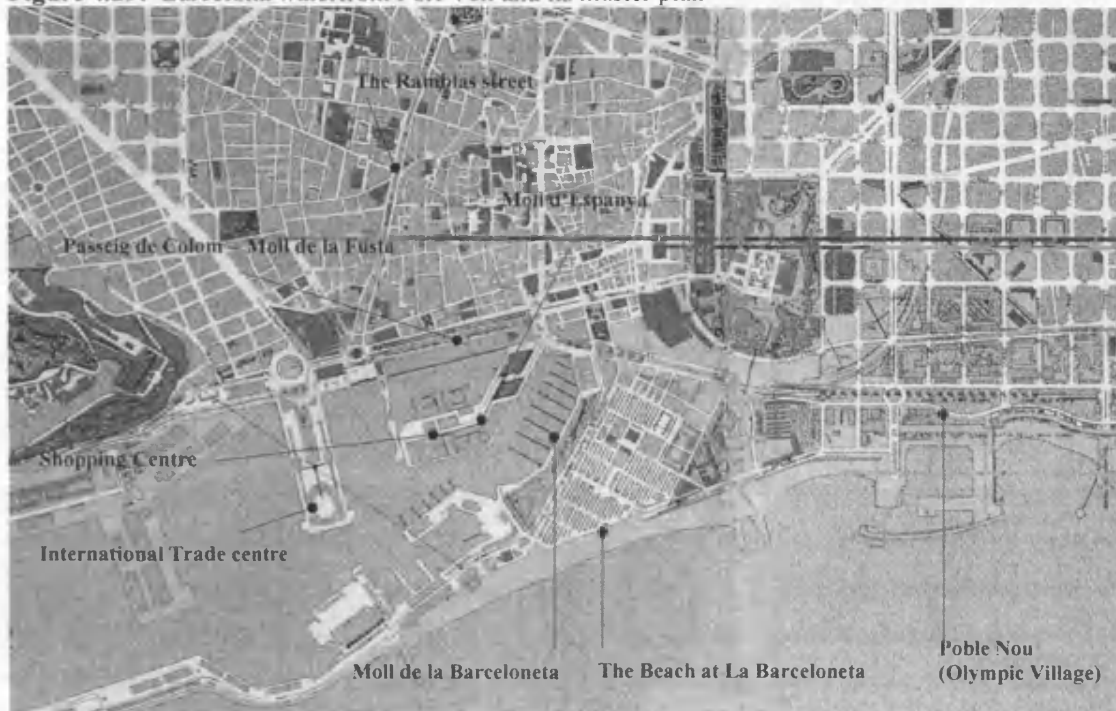
**Figure 4.28:** Aerial view of Barcelona harbourfront in 1994



Source: Meyer (1999, p114)



**Figure 4.29: Barcelona waterfront Port Vell and its master plan**



Source: Meyer (1999, p158)

For example, the regeneration of Passeig de Colom and Moll de la Fusta clearly (Figure 4.30) shows how two different levels of spatial structure – “urban balcony with the high, uninterrupted quay wall that placed the city on a plinth, as it were, which created a spatial coherence that united the entire harbour front” (Meyer, 1997:155) - achieved a unique harbourfront open space between ‘the domain of urban culture’ and the ‘large scale world of port and sea’ (Meyer, 1997:155). Like Passeig de Colom and Moll de la Fusta, the great success of other waterfronts, such as Moll d'Espanya and La Barceloneta beach, resulted from the design intention to make the waterfront an important public domain from the outset and to create wide physical openness on the waterfront incorporating buildings for every type of use.

In addition, the redevelopment of 45 hectares in the Poble Nou Olympic Village on the waterfront, completed in 1992 (Figure 4.31), created a “new mixed post-modern [urban waterfront] environment with over 1,800 flats of 533 different models, over 55 hectares of new green space, five office buildings of which two were 100 meters high, an exclusive Japanese-owned shopping mall ‘SOGO’ with 42 shops, over 150 other commercial services including exclusive restaurants, a marina for more than 200 boats and yachts, almost 3,600 new parking places, and a new university” (Jauhainen, 1995: 10).

As a result of the successful creation of the public space on the waterfront connecting the historic town, the Royal Institute of British Architects awarded its annual Gold Medal to the city of Barcelona in 1999, although the prize is normally awarded to specific buildings of design excellence. The success of the Olympic Village and Port Vell was clearly another catalyst (Jones, 1998) for the redevelopment of the northern part of Barcelona’s waterfront.

**Figure 4.30:** The urban balcony which creates unique urban public space between the existing city and the waterfront Passeig de Colom and Moll de la Fusta



Source: Meyer (1999, p162)

### Key findings and conclusions

Key findings from the two examples of Port Vell and Olympic Village waterfront developments in Barcelona can be simply drawn. It was the design strategy from the outset to create an enhanced public domain on the waterfront that improves the identity of the city. Leisure and entertainment use of the waterfront was a focus of the development process, as was connecting this functionality to the city centre through the Ramblas, which is Barcelona's symbolic and thriving linear public space. Finally, ample width to, and high quality design of, the waterfront promenade gave the potential quarter the ability to accommodate the diverse, temporal and changing dimensions of post-modern society. However, the wide open space on the waterfront is often empty without people gathering and robust activities. Thus, animating the waterfront with various events/programmes in the built environment of the waterfront space in conjunction with the existing city is needed to continue the current success.

**Figure 4.31:** Olympic Village at Poble Nou



Source: Gastil (2002, p87)

## 3) Rotterdam – Kop Van Zuid

### Redevelopment background and process

Rotterdam is the largest port in the world and an important gateway to Europe. “Three quarters of the goods traded in the world pass through Rotterdam, either as raw materials, semi-finished goods, or manufactured projects” (Bakker, 1993: 152). Severely damaged during World War Two and “subsequently the subject of one of Europe’s most heroic reconstruction programmes, Rotterdam remains one of the great ports of the world” (Powell, 2000: 114). Furthermore, like many other North American and European port cities, Rotterdam has also experienced the restructuring world economic condition and the technological shift of the shipping industry, such as large-scale containerisation and the subsequent

needs for new port functions – Europort and Massvlakte – to meet the changing requirements of the shipping industry. Consequently, Kop van Zuid - consisting of Wilhelminapier, Entrepothaven and Binnenhaven - once the centre of port activity in Rotterdam, became a redundant dock area (Figure 4.32). At the same time in the 1980s, because of its proximity to the city centre, the redundant dock became the potential area for the extension of the old city centre .

**Figure 4.32:** Aerial view of Kop van Zuid in 1986 before the redevelopment



Source: Meyer (1997, p356)

### Planning, urban design and the built environment

After the severe damage of the city during World War Two, “Rotterdam has had two enormous tasks ever since 1946: reconstruction of the city centre and reconstruction of the port facilities” (Bakker, 1993: 152). In the course of the redevelopment, Kop van Zuid “should fit into the framework for revitalising Rotterdam. In other words, it should contribute to the enhancement of the city’s appeal, to the strengthening of the city’s economy, and the improvement of the city as a place of residence” (Bakker, 1993: 153). In the 1980s, the 125 hectares of Kop van Zuid were considered for their potential to extend the city and be developed with high density commercial and residential areas with leisure facilities. In 1987, a master plan for “around 5,300 residential units, 370,000 square meters offices and 90,000 square meters of light industrial, educational and leisure space” was drawn up by Teun Koolhaas (Powell, 2000: 121).

**Figure 4.33:** Master plan of Kop von Zuid in 1987



Source: Meyer (1997, p355)

Kop van Zuid was characterised by its high density office buildings and residential development, the World Port Centre twin tower, located within an existing community, in accordance with Rotterdam's compact city movement, which was being incorporated in the developing master plan. "The high-rise form of development has caused the project to be called the Manhattan of the Mesus" (Couquhoun, 1995: 119). The construction of Erasmus Bridge in 1996, which connects Kop van Zuid with the city centre, symbolised the regeneration process, and was a significant unifying element between south and north (McCarthy, 1999). The waterfront, separated from the city centre by the river Maas, was dramatically connected to the downtown area by an iconic bridge with a strong visual contact from the river. In the words of Meyer (1999: 378):

This new thoroughfare and its accompanying bridge could prove to be the first new structuralising element in Rotterdam's post war history that has significance on various levels of scale: as a connection to the highway network, as a local connection between the two halves of the city, and a common element uniting bordering urban neighbourhoods (Meyer, 1999: 378).

**Figure 4.34:** Erasmus Bridge opened in 1996. It became a symbolic structure unifying the City Centre and Kop van Zuid in terms of functionality and psychology.



Source: Powell (2000, p118)

In addition, high quality, experimental and post-modern architectural design and its realisation along the waterfront improved the identity of Kop van Zuid (Gastil, 2002: 69; Powell, 2000: 114; Colquhoun, 1995: 120). In addition to improving the identity of the waterfront, the unique architectural design of the residential, restaurant and office buildings provided an opportunity to differentiate the pastiche of the successful waterfront.

**Figure 4.35:** Experimental architectural design of the Waterfront Pavilion (left) and restaurant and the first housing complex the Peperklip (right)



Source: Colquhoun (1995, p122), Meyer (1999, p341)

## Key findings

The Kop von Zuid provided useful lessons on how a waterfront that is separated from its city can be reconnected with it in terms of physical, functional and socio-cultural aspects. Rivers often bisect cities, creating geographical and social barriers. However, the Kop von Zuid is an example of how the waterfront integrated this area into the city centre as part of a functional extension of the city context, and enhanced the image of the waterfront socio-culturally, using symbolic architectural structures and various types of building design.

## 4) Genoa waterfront

### Redevelopment background and process

“The old port of Genoa is located in the heart of the largest historic centre in Europe” (Jauhiainen, 1995: 16). It was also “known for centuries as ‘Genoa the Superb’, not because of its leading role in the seafaring culture of the Mediterranean but for its unforgettable silhouette as seen from the sea. The Amphitheatre-like form of the harbour appears carved from the sea” (Krieger, 2001:180). However, in the 1970s, the picturesque historic harbourfront became inadequate to accommodate the large-scale modern shipping industry, and it therefore became underutilised. The movement of the port function upstream to Voltri Harbour accelerated the decline of Genoa’s port. And the construction of an elevated road along the waterfront in 1965 created a strong physical and visual barrier between the historic city and the port (Jauhiainen, 1995) (Figure 4.36). Despite the functional decline of the old port, its geographical form was “powerful as a focusing device-like a centripetal force orienting the entire city to the old harbour” (Krieger, 2001:180) and this provided an opportunity for the port to “reinvent itself as a cultural and tourist destination in anticipation of the world-wide commemoration of the 500<sup>th</sup> anniversary of Columbus’s discovery of America” (Powell, 2000: 66).

**Figure 4.36:** Aerial view of the historic harbour, the Port of Genoa



Source: Babrielli (1993, p.88)

### Planning, urban design and the built environment

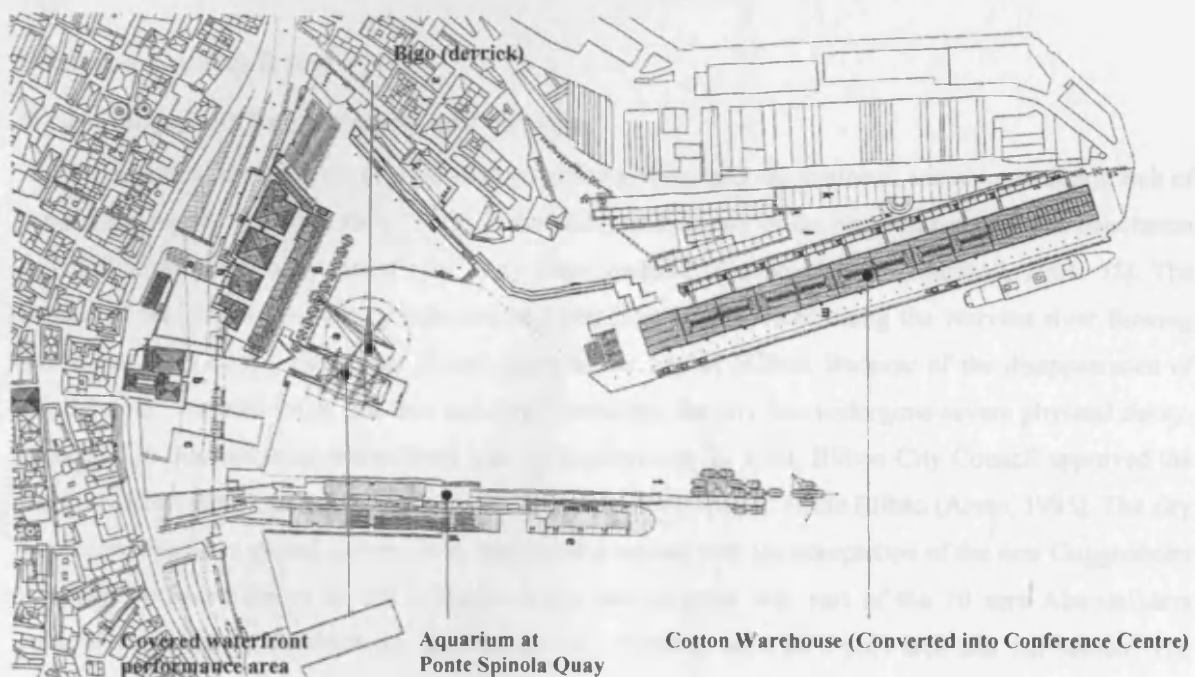
The redevelopment of the old port actually took place in 1985 after Genoan architect and influential actor in the redevelopment process, Renzo Piano, produced a master plan for a new vision of the declining old port (Figure 4.37). His main theme for the master plan was “what is called a modern attempt to continue the history of the place without changing the urban character of great quality concurrently with the port



authority's plan" (Jauhiainen, 1995: 3). Furthermore, he identified the old port location 'as the inevitable location for the celebrations, which could be used as the launching-point for a much-needed process of regeneration extending into the 21<sup>st</sup> century' (Powell, 2000: 66).

Through its co-operation with the City Port Authority and a public company, "the city of Genoa continued efforts to renew the harbour through culturally ambitious planning and design" (Gastil, 2002: 76). Consequently, the renovation of the old port included the conversion of a historic 360 meter long cotton warehouse into an exhibition and conference hall, Aquarium, at Ponte Spinola Quay and the spectacular visual landmark of Bigo (derricks) for outdoor performances. This succeeded in not only becoming part of the preparation of the 500<sup>th</sup> anniversary of Columbus's discovery of America but also in the regeneration of the old port area.

**Figure 4.37:** The master plan for renewal of the old port and city centre



Source: Powell (2000, p68)

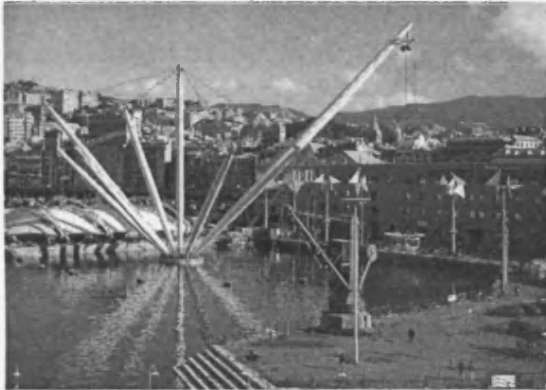
In particular, the construction of Bigo in the centre of the historic port for outdoor events/programmes improved the image of the rebirth of the old port. At the same time, it became an important focal and visual landmark. In addition, the adaptive reuse of historic buildings, for example the conversion of the 360 metre long cotton warehouse into a conference centre, preserved the harmony between the old and the new in the course of the redevelopment.

### **Key findings and conclusions**

The Genoa redevelopment demonstrates the importance of acknowledging and enhancing existing historic heritage, often left over after the decline of the port activities, which provides an important foundation for reshaping the image of the historic port. The conversion of historic buildings for modern use was a

significant finding from the Genoa case. The importance of holding international events to boost the redevelopment process, and reinforcing place marketing was also highlighted.

**Figure 4.38:** Outdoor performance area –a symbolic landmark with historic images of derricks and cranes



Source: Powell (2000, p66)

## 5) Bilbao waterfront

### Redevelopment background and process

“Bilbao is a vital historic port city situated in northern Spain and the business, social and cultural hub of the Basque region” (Sharp, 1995). “It sits in the valley and estuary of the Nervion river and, its population of nearly a million people spread over thirty municipalities of unequal size” (Marshall, 2001: 55). The decline of the nineteenth century industrialised maritime ports located along the Nervion river flowing into Biscay Bay finally drew near to the centre of the city of Bilbao. Because of the disappearance of shipbuilding, manufacturing and iron and steel industries, the city had undergone severe physical decay, especially in the port area, where there was unemployment. In 1994, Bilbao City Council approved the General Urban Development Programme for the future development of the Bilbao (Areso, 1995). The city was established as a global cultural icon and regional capital with the completion of the new Guggenheim Museum by Frank Gehry in 1997 (Figure 4.39). The museum was part of the 70 acre Abandoibarra cultural waterfront redevelopment located on land formerly used as a port area and rail station. The Abandoibarra cultural district was the centrepiece of the city’s ambitious cultural project, within walking distance of downtown (Marshall, 2001: 61). In the city context, the investment in infrastructure such as a new airport, underground station and Abando Passenger Interchange took place as part of creating a regional cultural capital.

**Figure 4.39:** Bilbao city centre and the Bilbao Guggenheim Museum on the Nervion River



Source: Powell (2000, p158)



## Planning, urban design and the built environment

The early master plan started with a broad multi-faceted vision based on the regeneration of the historic city, creating a European regional hub; and its transformation from a medieval, mercantile, industrial city to a post-modern one focusing on service-based industries (Areso, 1995). In fact, the success of the revitalisation of the city resulted from cultural-driven regeneration projects such as the Bilbao Ria 2000 Scheme. The culturally-oriented revitalisation which created cultural districts such as the Abandoibarra was achieved using three main strategies: “improving the external image of the city (Guggenheim Museum); redevelopment of decaying urban infrastructure (eleven underground stations opened in 1995 with a new passenger interchange in Abando); and rehabilitation of the old town” (Marshall, 2001: 63-64). The centre of the strategy was “to improve local self-esteem and enhance the region’s image internationally through a cultural project” (Krieger, 2001: 178).

**Figure 4.40:** The view of the Guggenheim Museum in Bilbao



Source: Marshall (2001, p62)

Unique architectural and engineering innovations such as buildings, bridges, and underground stations played a significant role in the transformation of the external image of the city (Figure 4.41). The waterfront, with its important physical and symbolic identity within the city, played an important role in generating cultural richness via its significant buildings. As a result, “today, due to the success of its regeneration efforts, Bilbao is the banking capital of Spain and is aiming to be the information technology portal for Europe. It is also home to the most impressive contemporary art museum of the decade – the Guggenheim Bilbao Museum” (Marshall, 2001: 57).

**Figure 4.41:** Unique and unconventional architectural building and bridges enhanced identity of the city



Source: Powell (2000, p163)

## Key findings

Unlike other waterfront redevelopments, the Bilbao waterfront redevelopment plan was drawn up in the mid-1990s. Most of the other case studies drew up their redevelopment plan in the 1960s, the 1970s and the 1980s. The Bilbao waterfront is therefore the most recent post-modern regeneration example which is characterised by culturally-driven regeneration initiatives. In fact, the initiatives have actually produced a world class cultural city. The regeneration of Bilbao shows “how a waterfront can provide opportunities for the creation of a new identity, a new expression of what the city wants to be” (Marshall, 2001:54). The case of the Bilbao waterfront redevelopment clearly demonstrates how the composition of waterfront and cultural buildings, especially the Guggenheim Museum, succeeded in shaping the city as a world renown cultural icon transforming it from a local city to a regional in Spain. The key lesson here is that revitalisation of derelict waterfront areas requires both physical transformation (iconic buildings) and intangible elements such as art activities, events and programmes to sustain success.

### 4.1.3 The Asian and Australian Contexts

#### 1) Hong Kong

##### Redevelopment background and process

Hong Kong transformed itself from a trading port with manufacturing introducing to a financial and service centre during the last century. Since the Nanking Treaty, its geographical location between the West and East made it an important trading harbour, providing great opportunities for economic prosperity along the Victoria Harbourfront. Most of the population is concentrated on the north and south hillside sections of Victoria Harbour. After World War II, economic prosperity and population growth required a larger Central Business District and residential space. Hong Kong's waterfronts were particularly subject to intense redevelopment (Pun, 1993). “Hong Kong has a great history of reclamation. During the last 100 years Hong Kong has reclaimed more than 3,000 hectares of land from the sea” (Ho, 1993: 209) (Figure 4.43). The reclamation from the waterfront, such as Central Wan Chai, Hung Hom Wan, Junk Bay, West Kowloon (new cultural quarter), and other areas, played a key role in the urban waterfront redevelopment process in Hong Kong (Figure 4.42).

**Figure 4.42:** Victoria Harbour in Hong Kong



Source: Google Earth (2005)

**Figure 4.43: The reclamation of Hong Kong's waterfront**



Source: Hudson (1996, p72)

### Planning, urban design and the built environment

Due to limited land, most of Hong Kong's urban development has been characterised by high density and high-rise to accommodate the growing population, " By 2011 the total is forecasted to be approximately 6.7 million" (Pun, 1993: 204) and there are increasing demands from Hong Kong's financial and trade industries. As a result, the high-density and high-rise commercial redevelopment patterns generally resulted in a lack of urban public open space and cultural facilities (Figure 4.44). The urban design and planning of the waterfront also resulted in poor accessibility and a lack of open space despite the scenic natural settings. According to statistics, 60 percent of the reclaimed waterfront was occupied by heavy transportation infrastructure (Hudson, 1996). Hong Kong's Victoria Harbour demonstrates a poor example of waterfront redevelopment due to its commercially-led design. However, the city recently drew up a plan for a world class cultural quarter on the recently reclaimed West Kowloon waterfront.

**Figure 4.44: High density and the commercially driven waterfront in Hong Kong**



Source: Quartermaine (1999)

### Key findings

Hong Kong's waterfront redevelopment demonstrates a typical unsuccessful waterfront in terms of use pattern and design approach. It also illustrates how a commercially driven approach results in poor accessibility, a lack of public space and poor interaction between the city and water. Although the limited land and growing population results in a high-rise and compact built environment, the biggest challenge on Hong Kong's waterfront is the balance between the demand for land of a growing population and

public use of the waterfront. A sophisticated urban design and planning approach is needed to address the problem.

## 2) Yokohama Minato Mirai 21

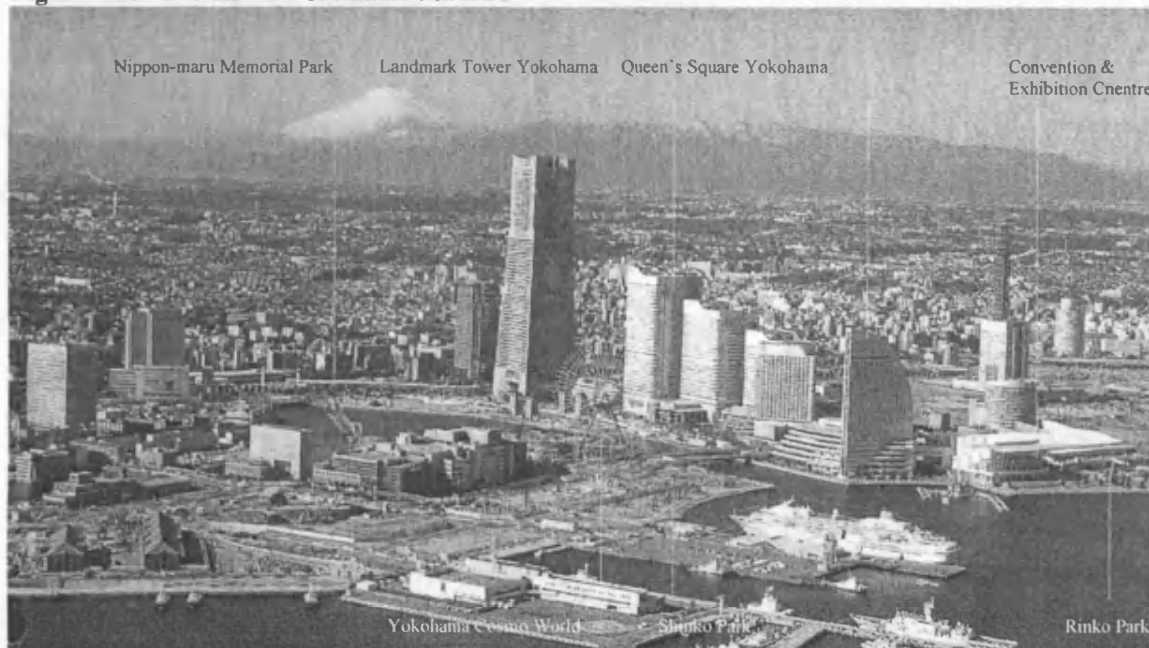
### Redevelopment background and process

Yokohama became an international port city in the 17<sup>th</sup> Century during the time of the Edo government when Japanese ports were open to foreign trade with the West. Since that time, Yokohama has grown not only as an international port city but also as an important gateway connecting Japan to the rest of the world. As a consequence of its historic background, Yokohama became a centre in Japan where “Western culture and modern technology have been introduced. That culture and technology contributed a great deal to the modernisation of the country in the nineteenth century” (Ikeda, 1993: 248).

During the first half of the twentieth century, the Yokohama port area was the heart of heavy industry, such as shipbuilding and iron manufacturing. It experienced rapid urbanisation and population growth during its economic success in the 1960s, when Yokohama played an important role as a sub-metropolitan city. However, the growth of the port city declined after the relocation of the Mitsubishi Heavy Industries Yokohama Shipyard in 1980.

In 1981, a master plan was drawn up for the redevelopment of the abandoned waterfront. Minato Mirai 21 (Future Port 21) Corporation was established in 1964 to implement the plan on the 186 hectares site (Figure 4.46). The Minato Mirai 21 (MM 21) project created a new central commercial district in Yokohama city as well as a world class cultural centre. It illustrates the rebirth of Yokohama, securing its future in the international world through the redevelopment of its underutilised waterfront (Figure 4.45).

**Figure 4.45:** Overall view of Minato Mirai 21



Source: Minato Mirai 21 Corporation (2001)

**Figure 4.46:** Masterplan model of Minato Mirai 21 in Yokohama



Source: Author (July, 2002)

### Planning, urban design and the built environment

Three major design concepts – a cultural waterfront district, an international port city and an informational city connected to the world - were adopted at the beginning of the redevelopment process (Minato, Mirai 21 Corporation, 2002), focusing on the creation of a 24-hour international cultural port city and an important third, central waterfront business district, bringing together two separate old city centres – Yokohama station district and Kanai district. The development highlighted the potential use of the waterfront as an important public domain creating a humanistic and environmentally friendly open space. On the basis of the sophisticated design control to achieve the stated aims, The MM 21 waterfront redevelopments successfully created an urban waterfront cultural quarter with the construction of several large schemes: the Pacific Yokohama convention centre in 1989; Japan's largest urban complex, consisting of hotel, concert hall and commercial facilities in 1997; the 296 metre high Landmark Tower, providing offices, hotels, shopping and cultural activities in 1993; the Yokohama Museum of Art in 1989; the Nippon Maru Memorial Park; and Sinko and Rinko Parks (Figure 4.47).

**Figure 4.47:** Nippon Maru Tall ship, the Maritime Museum and Nippon Maru memorial park from the roof of Maritime Museum



Source: Author (2002)

In particular, a landscaped pedestrian waterfront promenade network for public use, also securing commercial activities, drew great attention from downtown local people and tourists. The adaptive reuse of historic artefacts, such as an abandoned old dock as the new Dockyard Garden and former railway bridges, gave a sense of a historic and symbolic place (Figure 4.48). The conversion of the old railway track beds and a truss into a linear pedestrian walkway, Kishamichi Promenade, clearly showed the development aimed to offer people a friendly public space despite the dense high-rise and other development along the waterfront.



**Figure 4.48:** The former railway bridge converted into Kishamichi Promenade parkway (left) and an old shipyard dock converted into Dock Yard Garden (right) for various outdoor events



Source: Author (2002)

Various events and street performances were organised along the promenade to attract local people. Well-planned accessibility allowed people to flow between the outdoor waterfront spaces and the high-rise indoor buildings – Queen’s Square and Landmark Tower - through arcades and pedestrian only streets. Unlike Tokyo’s Waterfront Sub-centre near Yokohama, the MM 21 waterfront succeeded in creating Yokohama City’s new cultural and commercial waterfront district in spite of the large-scale, high-rise and dense redevelopment approach. At present, MM21 has already transformed its waterfront area into an internationally recognised socio-cultural and commercial precinct (Figure 4.49).

### Key findings

MM 21 provides several useful lessons. Despite the dense and large scale redevelopment of the waterfront, the implementation of a sophisticated master plan having clear aims with regard to planning and design has created a people-friendly, high quality urban cultural quarter along the waterfront. Innovative ideas involving adaptive reuse of historic places and objects – such as the old docks and railway bridge – has provided valuable examples for other waterfront developments. Preparation of a ‘network of greenery’ along the key water’s edge, with a pedestrian route and the provision of parks as public amenities has created a truly public waterfront space.

**Figure 4.49:** Weekend flea market along the waterfront promenade



Source: Author (2002)

## 3) Darling Harbour

Darling Harbour is located in the panoramic natural setting of Sydney harbour (Figure 4.50). The city of Sydney is the major financial and business centre of Australia and a significant node in the Asia-Pacific

region (Marshall, 2001). The city's identity has always been related to its waterfront. However, like many other waterfront cities, Sydney experienced a dramatic decline in water-related industries and subsequent redevelopment of the waterfront. During the 1960s, a large-scale, commercially and politically driven redevelopment was implemented without 'any sense of public realm' despite the benefit of Sydney's urban waterfront setting along Woolloomooloo, the Rocks [in Circular Quay] and Victoria Street' (Marshall, 2001:29).

**Figure 4.50: Aerial view of Darling Harbour**



Source: Yokohama Minato Mirai 21 (2002, p9)

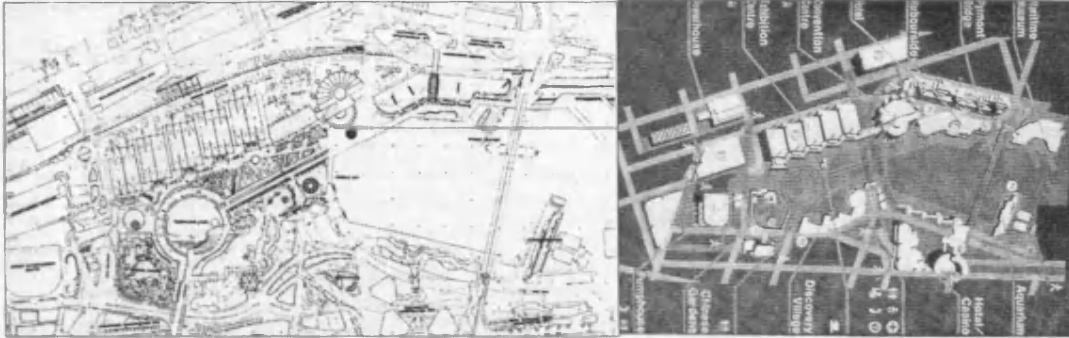
During the 1980s, however, the process of the redevelopment of Sydney's rundown waterfront caused Young (1993: 263) to comment that "Darling Harbour shows how urban waterfronts can be a new focus for the city, providing an enormously rich and varied experience for public enjoyment". The success of Darling Harbour as a cultural waterfront was a 1980s' version of the 'Baltimore Syndrome', and many parts of the redevelopment concept and process were adapted from the Baltimore case.

### **Planning, urban design and the built environment**

In 1984, the plan for the redevelopment of Darling Harbour started with strong cooperation from the development organisations – the MSJ group, the Design Directorate, and managing contractor - to meet the deadline of the bicentennial celebration scheduled for 1998. "Darling Harbour is a 134-acre harbour redevelopment adjacent to the central business district of Sydney. The project was one of several around the world developed on the Baltimore Harbourside model" (Marshall, 2001: 30). The major design scheme put an emphasis on the waterfront as an important asset for the 'public environment' so that people could walk, sit, talk, watch and experience the waterfront as a public domain. In other words, "the intension was to make a place for people and [place for entertainment and enjoyment of the waterfront environment] by converting an obsolete railway yard, crossed by overhead motorways, into a centre for cultural, educational and recreational activities" (Marshall, 2001: 30). To achieve the design goals and create a place for people, the harbour accommodated the various functions in a series of cultural, leisure and commercial buildings, including a convention centre, entertainment and exhibition centres, a museum, theatres, Harbourside shopping centre, a Chinese Garden, an Aquarium, and Cockle Bay Restaurant – with a combination of open parks and a high quality pedestrian walkway system along the waterfront (Figure 4.51).



**Figure 4.51:** The master plan of downtown and Darling Harbour redevelopment



Source: Young (1993, p15 and p269)

Although there were strong physical barriers between the central business district and the waterfront due to an elevated highway, the creation of Tumbalong Park at a former railway depot site established a link between them. The park attracts 10 to 14 million people per year, and has eliminated the danger posed by this physical separation (Figure 4.52). The conversion of a former highway high level crossing of the harbours into a pedestrian walkway – Pyrmont Bridge – with a monorail on top, provided useful ideas on how to transform negative aspects of the physical environment into positive and useful ones. “Interactive environment urban design schemes which encourage people to get involved with waterfront activities” (Young, 1993: 266), such as spiral tidal water, water jets and boating etc., generated not only a more lively waterfront environment but also the ultimate experience of what a well-planned waterfront environment could be.

**Figure 4.52:** Tumbalong Park



Source: Young (1993, p270)

### Key findings

A major lesson we can learn from Darling Harbour is how the concept of public use in the waterfront redevelopment process can create a successful waterfront environment. The network of pedestrian movement, along with parks and an agglomeration of mixed use buildings, played a significant role in the success. Above all, the function of the key cultural facilities along the waterfront contributed to sustain critical mass and create a lively waterfront. The importance of major cultural buildings is identified to create a culturally oriented waterfront. The location of the downtown area adjacent to the waterfront, and the linkage between both in spatial and functional ways, were also essential parts of the success.